

*A PHYSICIAN'S HINTS
WITH EXCURSIONS FOR HEALTH
AMONGST THE WATERING PLACES OF
THE PYRENEES, FRANCE, SWITZERLAND
THE MEDITERRANEAN &c*



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CHANGE OF AIR AND SCENE.

*A PHYSICIAN'S HINTS; WITH NOTES OF EXCURSIONS
FOR HEALTH AMONGST*

THE WATERING-PLACES OF THE PYRENEES, FRANCE
(INLAND AND SEAWARD), SWITZERLAND, CORSICA,
AND THE MEDITERRANEAN.

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PREFATORY NOTE.

THIS volume has a double purpose. It may be read as a simple book of cheerful travel-talk—the impressions of a shrewd, genial, experienced medical man concerning some of the most charming health resorts of the Continent, or it may be taken as a practical index to the various Mineral waters which exercise so powerful an influence in specific ailments.

From the first point of view it is hoped that the reader will find it a pleasant book; from the second it is believed that many will find it a valuable one.

The brief but suggestive hints contained in the text, combined with the classifications given in the appendix from recent sources, present a bird's-eye view of Mineral waters and their comparative value as curative agencies such as is furnished by no other popular volume in English.

This may be of service either in determining how to make the best use of a mere holiday change; or, in the case of invalids, to assist in the selection of eligible spots for a more lengthy sojourn.



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INTRODUCTION.

THE reality of medical science has sometimes been doubted ; the question has been put whether, on the balance being struck between good and evil, humanity in fact would not gain by being delivered from this problematical art, practised with difficulty, subject to error, and often led astray—whether mankind would not be benefited by being left to the resources of Nature only.

But granting that the utility of medical science may be called in question, this is not allowable with regard to those principles and rules dictated by experience, whose aim is the preservation of health, and which constitute what is called hygiene. The principles of this science are adopted, its prescriptions respected. Now, it would be an ingratitude towards medical science did we not remember that not only is hygiene one of the most important branches, but that the best established and most widely dispersed hygienic precepts—all those popular notions that guide sensible men in the conduct of their lives and care of their health, which make of the mother the first physician of her infant—that all the improvements which have rendered the conditions of life more healthy and prolonged its mean duration among civilised nations—are positive conquests of medical

science, the best fruits of its acquisitions, the most precious *résumé* of its discoveries, put within the reach and at the disposal of the public.

Such practices as those of observing a proper diet and rest, of keeping warm when one feels ill at ease and weak, of not seeking to restore lost strength by food taken out of season—rules now universally adopted, and which appear so simple—are the result of the most careful observation of the phenomena of life and physiological laws. And these popular notions were for a long period scientific notions belonging to the domain of the professedly learned ; the ignorant rustic population is yet very far from knowing or appreciating them.

We do, then, not dissimulate the importance of the work which we present to the public in the form of apparently light reading ; the undertaking of popularising the true principles and sound doctrines of hygiene—of giving in the form of axioms or recitals the most reliable precepts for promoting health and avoiding disease—this undertaking is the enunciation of the quintessence of medical science, in order to put it within reach of the public.

The question here is not to give a collection of recipes ; what is wanted is the most concise abstract of medical science, the clearest and most practical results of observation, the philosophy of the science itself.

If I wished to attack medical science, I should not do so, as do the critics above alluded to, by showing up its defects from the physical point of view ; I should accuse it of enervating the soul by the too minute care it takes and the fear it inspires. I know not, indeed, what will become of future generations, if we continue to weaken

them in their sources by the excess of care and precaution with which we surround infancy. Fortunately, to restore our lost strength, we have the ignorant classes, condemned to hard work; for soon, if we do not take the right care, only the *children badly brought up* will have the stamina to become men.

We forewarn the reader that the hygienic principles we shall advocate will not be inspired by a philosophy timid and fearful to excess; we even avow that life does not seem worth to us all the precautions a timorous and craven science of medicine would take for its preservation; we are, moreover, convinced that an excess of care and precaution counteracts the very object aimed at, and is destroying, especially in children, by too much delicacy and attention, the equilibrium between the different systems; we exalt the nervous system at the expense of the general health, and create the most abundant source of infirmities and sometimes incurable maladies. We turn in a vicious circle when we forget that, to avoid disease, we ought above all to invigorate the body against the causes of disease; and, as we are not matter only, it is no less necessary to fortify the mind against the terrors of disease.¹

As soon as we teach a child to think about himself, his sound hygiene and equilibrium of health is for ever endangered; and this is what we do every day in asking children unnecessarily whether they do not feel ill here or there, at the same time searchingly looking at them. We know not what harm we do, all the evils we call forth, by these evidences of ill-applied interest and solicitude.

¹ See Feuchtersleben, *Hygiène de l'Ame*, translated from the German, 2nd ed. Paris, 1860.

CHANGE OF AIR AND SCENE.



THE HYGIENE OF THE SEASONS.

WINTER.

DECEMBER—JANUARY—FEBRUARY.

HIPPOCRATES¹ has said : ‘ The maladies engendered by winter, cease in the summer ; those engendered by summer, cease in winter.

‘ The cure of disorders engendered by spring, may be expected in the autumn ; that of maladies engendered by the autumn, must necessarily take place in the spring.’

Winter, from the hygienic point of view, comprises in our climate the months of December, January, and February.

Winter is injurious to the weak, favourable to the strong, fatal to old people, propitious to the young.

There is less disease and greater mortality than at other seasons of the year.

Morbid temperaments and winter complaints belong to the inflammatory kind.²

It is the season of colds and chest affections, of catarrhs and rheumatism, especially if the winter be damp. The skin, contracted by the cold, performs its functions badly ; the mucous membranes of the nose, throat, bronchial tubes and bladders, are easily affected ; hence the hygienic precautions incumbent on convalescents and delicate persons, weakened by age or

¹ Hippocrates, *Œuvres complètes*, transl. by Littré. Paris, 1849, t. vi. p. 51.

² Ribes, *Traité d'Hygiène thérapeutique*. Paris, 1860, p. 217.

disease. Only strong and healthy persons may with advantage brave the rigours of this season. For these an excess of caution is injurious, since it only helps to develop a susceptibility which is opposed to functional equilibrium and organic resistance.

‘Winter is favourable to the treatment of the morbid conditions which autumn and summer may have left behind them, such as nervous and spasmodic affections, accompanied by atony ; mucous disorders, scrofulas, and obstinate intermittent fevers. It is unfavourable to inflammatory diseases, especially to such as are fluxionary and which affect the lungs.’ (Ribes.)

Weak and delicate persons ought to adopt various precautions, according to their worldly circumstances and social position ; unfortunately not every one can bestow on his health that attention it demands. What would be the good of saying to a poor door-keeper of Paris : ‘My friend, you are subject to rheumatism, damp cold is hurtful to you, the ground-floor does not suit you ; you ought to live on an upper floor, dry and exposed to the sun?’ Or to a poor sempstress earning eighteen-pence a day by embroidery or stitching gloves, and living in a garret on the sixth floor : ‘My poor woman, you have palpitation of the heart, a short breath, you must not go up so high ; live on the first floor, and take gentle walks in the sun in the Luxembourg or the Tuileries?’

Here, among so many others, are some of the rocks on which medical science is wrecked, much more than from its own inefficiency, or that of its remedies, with which physicians are daily taunted.

In truth, there are compensating circumstances. If the poor suffer but too often from the want of care and comfort, the rich perhaps suffer more by the excess of the precautions that enervate and weaken them.

But though our advice seems to suit the rich only, we hope to render it useful to the most moderate fortunes, and adapt it to every possible condition.

To those whom nothing confines and chains to a fatal existence—who need not take into account either their means, or the duties of a profession or office, or the obstacles of a

numerous family, who are able to place themselves in circumstances the most favourable to their constitution and health—we say in the first instance : ‘ Are your lungs delicate, is your throat sensitive, your bladder affected? Are you racked by rheumatic pains? exhausted or convalescent? Have you, in fact, from some cause or other, just strength enough to maintain life during the genial seasons in which the body has not to combat inclement weather? In your case avoid the north, large towns and fogs during the bad season, and seek in milder climes easier and healthier conditions of existence.’

But where are you to go? to what climate, to what country shall you give the preference?

If you do not wish to go far away, Montpellier—in spite of the drawbacks of its climate, with the resources of its illustrious faculty, and the delights of an elegant and literary city, provided with good hotels—offers what is best in France. Perpignan, Hyères, and Cannes, enjoy sweet and agreeable sites, favourable to consumptive persons and valetudinarians.

The islands of the Mediterranean, Corsica, and especially Ajaccio, sheltered within its beautiful bay from the northern and Italian winds, and better still, Algiers, with its picturesque and animated life, its delicious *Sapel*, would be preferable; and finally Egypt, with which our intercourse becomes closer from day to day, and a voyage to which no longer terrifies our imagination. There is no doubt that (thanks to railways and steamboats) new medicinal localities, suitable for all constitutions, and in harmony with every temperament, will some day be rendered easily accessible to all invalids. And in starting with this principle, that for chronic diseases the best and most powerful curative agent is a medium appropriate to the kind of infirmity from which one suffers, we shall soon behold an exchange of patients among the different climates of the civilised world. The south will send to the north its bilious constitutions, worn out by a burning of the sun; its enlarged livers, its lazy stomachs and bowels, its nervous systems impregnated with feverish principles, undermined by repeated shocks of intermittent fits; to receive itself delicate chests,

sensitive mucous membranes, lymphatic constitutions. And to this exchange will be due the most precious concurrence with, the most efficacious aid to, the methods and remedies of ordinary medical science. There would, so to speak, be no more chronic diseases, if every one could be placed and live in the medium most suitable to his constitution. Are not the English, exhausted by a long residence in India, in the midst of the stifling and damp heat of Bombay and Calcutta, half cured as soon as they put their foot on European ground? Do they not find their inert digestive functions resume their activity, their hyper-atrophic livers return to their normal proportions, under the tonic influence of a colder and drier climate, assisted by the action of certain mineral waters, such as those of Carlsbad or Vichy?

Laënnec says, that of all the remedies tried hitherto for the cure of phthisis, there is none that has more frequently arrested, or even totally eradicated it, than change of scene. But it is especially in youth and childhood that change of climate can produce the most marvellous effects. Unfortunately, people resort to it too late, and wait until serious illness, endangering life, compels them to quit an atmosphere wherein poor debilitated beings, condemned from their birth to phthisis, can no longer exist. But then it is too late; the destructive principle has invaded the organs, and produced ravages too deep to be repaired. A milder climate can only prolong life, but cannot cure and restore health.

We must fly the inhospitable regions before the breaking out of the evil, before the budding of the germ, to settle, not for a season, but for years, in a favourable clime, until age and the developed, modified, and invigorated constitution get the upper hand. These expatriations, it is true, are painful and difficult; but few privileged members of the human family have the choice and means; yet even amidst these fortunate ones, free from every care, entirely preoccupied with the preservation of their children, how very few resolutely adopt this remedy—the only one that can save the threatened beings so dear to them! In this respect people act as they do with regard to con-

sultations in acute and dangerous illnesses; they are rather adopted as consolations *in extremis*, that one may be free from reproach, than as really efficacious remedies.

But, on the other hand, how very few physicians have the courage to tell families, whose confidence they enjoy, long beforehand, long before any symptom of the dreaded malady shows itself, even when there is every appearance of the most robust health: 'Your child is the offspring of a phthisical father or mother;' or 'The child has lost a brother or sister by that disease; you are anxious, and can do everything to bring it up and preserve its life; well, while it is in good health, remove it from Paris or even from France; send it to a milder climate, a warmer sky, bring it up in the light of the sun, on the sea-coast; let it grow up, and grow strong there for ten years, and only allow it to see its native place again when its constitution shall have been invigorated, modified, and the disease-germ expelled.'

And yet this is what ought to be done to obtain the benefit of a change of climate, instead of waiting until death already circulates in the veins.

Such language ought to be addressed not only to rich families, decimated or threatened by consumption, but to the parents of lymphatic, scrofulous and rickety children. How many fathers and mothers, favoured by fortune, enjoying leisure, having a name to transmit, would accept these conditions, and even joyfully incur sacrifices, were it suggested to them with firmness and confidence! How many would be happy to purchase at this price the life and health of cherished beings devoted to an almost certain death, or a languishing life, destined to be extinguished in a degenerate posterity!¹

¹ My object being to lay down in this book established and confirmed facts only, this is not the place to discuss the principles I enunciate. Were it necessary to give proofs, I could quote the example of poor children born in the valleys of the Basses-Alpes—lymphatic, probably tuberculous—whom I have seen restored to health, strength, pure and rich blood, by a two years' residence on the shores of the Mediterranean. Their cradle was the burning sand of the beach, and they breathed with expanded lungs the vivifying and saline air of that warm atmosphere. The botanist Aublet, says Alibert,

To people of moderate means and to the poor—in fine, to the large number whom the necessities or duties of their condition chain to their place of abode, like the goat browsing round the stake to which it is tethered—I would say: ‘Protect yourselves as well as you can against cold and damp, but without overdoing your precautions. Do not consider yourselves as ill, if you are only delicate. Do not shut yourselves up too carefully ; do not deprive yourselves of air and exercise. Wear flannel, but do not sleep in rooms too hot, and deprived of respirable air by being inhabited throughout day and night. Sleep in a room that is cool and without fire, if you have several rooms.’ It is impossible to tell how many restless and sleepless nights are due to bad air and want of ventilation.

To old men I would recommend prudence. How many have not suffered from having taken no heed of their age, and acted like young men ; from having exposed themselves to draught and cold under a carriage-way to escape a shower, and save a few pence, instead of taking a carriage and going home.

Let them not forget the saying of the wit, ‘One dies only through foolishness !’

Strengthen your children by exercise in the open air, in spite of the coldness of the season. If you have no particular reason to be anxious about their chests, do not easily be frightened at a slight cold, which is of less consequence than the weakening and sensitiveness resulting from indulgence and ‘coddling.’ Let the youngest children, infants at the breast, go every day to breathe the fresh air at the most favourable time ; air is the best soother for infants, unless they are ill ; there are not six

after having vainly tried all the medical resources of Paris to cure the general oedematous affection from which he was suffering, went to Provence, and there exposed himself on the burning sand to the rays of the sun. In a short time not only did the considerable infiltration with which he was attacked disappear altogether, but the organs even, reassuming their tonic state, acquired that dry but happy vigour that characterises some of the inhabitants of the tropics, and this to such a degree that his friends scarcely recognised him.

‘Few scrofulous persons are met with on the sea-coast. Patients find on the shores of the Mediterranean the combination of all beneficial therapeutic influences.’ (Ribes.)

days in the year in which, on account of bad weather, they ought to be deprived of their airing and kept indoors.

To young and languid women I would say : ' Fear protracted repose, which robs you of the little strength you have, and renders you sensitive like the plant of that name. Lounges are latterly much abused. Do not lie down on them, unless you are really fatigued. Three months of such a regimen are worse than actual illness ; you arise from it more exhausted than from a violent inflammation of the lungs. Do not treat a slight indisposition as an illness. It is better occasionally to brave the evil than always to yield to it.'

' If you have a slight soreness of throat, a hoarseness, a somewhat lingering cold, drink a glass of Eau-Bonne in the morning, mixed with a little milk and sweetened with a spoonful of gum or violet-sirup ; take something soothing, such as sirup of Clerambourg, but do not make your lives miserable for such a trifle.'

' Combat weakness of stomach and digestion, re-animate circulation, restore energy to your blood by the use of iron water or a few pinches of sub-carbonate of iron, especially after your menses, which weaken you.'

To husbands I would say : ' Do not forbid your wives the distractions and pleasures of the world under the pretext of taking care of their health. Dancing is for many women what hunting and riding are for men ; it is their real exercise.

' Give them especially, as far as in you lies, satisfaction of mind and heart. How many disorders have no other origin than mental trouble and unrequited feeling ? Domestic happiness and peace are the best promoters of health, as they also enable us to bear the trials of life.'

Baron Louis used to say to the ministers, his colleagues : ' Let me have good politics, and you shall have good finances.' Of how many patients, and especially female ones, might it not be said, ' Satisfy their hearts and minds, and you give them health.'

To all I would say : Beware of habits contrary to the special laws of your organisation and constitution ; study yourselves

with understanding, and do not persevere in a mode of life contrary to your nature. Certain disturbances of the nervous system, even certain chronic affections, are only due to an erroneous alimentary regimen ; to the use of substances antagonistic to your organisation, in spite of the apparent relish, calculated to maintain the heated state of the blood and the irritation of the nervous system. I have seen coffee, adopted from a preference which appeared instinctive, produce gout, irritation of the kidneys and bladder, or other morbid states, which disappeared as soon as its use was given up. Wine has the same effect on certain constitutions, in which water, taken plentifully, re-establishes the equilibrium and functional integrity. Water is especially beneficial in the morning ; plethoric persons would do well to drink nothing else for breakfast.

I do not mean to say that wine and coffee are not excellent beverages for most men ; but there are, medically speaking, idiosyncrasies, that is to say, peculiar constitutions, that must be taken into consideration. I have known a very healthy person to whom any kind of cheese was positive poison.

I repeat it, for this truth is not sufficiently well known, certain diseased conditions are only kept up by an alimentary regimen, or a mode of life not generally appropriate to the individual constitution. Of all the vagaries of regimen the most dangerous are excesses at table, especially the abuse of wines and liqueurs. Satiety or impotency quickly put a limit to other excesses ; the pleasures of the table are those most frequently renewed, and which last longest. As legitimate, nay favourable to the well-being and expansion of the organs, as is this pleasure when enjoyed in moderation, as fatal is it when indulged in beyond the limits of strength and reason. Many persons have never recovered from a single excess at table, carried beyond all bounds.

If you have a tendency to grow fat, rise early and take exercise ; tire yourself, even fasting. Thin persons will adopt a contrary course. Many persons would do well to give up coffee, not because it hurts them, but simply not to increase their embonpoint. Not that coffee in itself is a very nutritive food ; but since it in a high degree promotes digestion and

absorption, it facilitates the complete assimilation of other alimentary substances. Some persons grow fat at will, or maintain themselves in their average condition, by using or abstaining from coffee.

In others it produces a contrary effect, by keeping up excess of excitement.

The theory of inflammation and the system of Broussais have had an immense influence on the general mode of living, and the alimentary regimen in particular. We may say that they have signally modified the culinary art and the habits of the table.

Whatever good there may be in that system, in promoting a certain moderation in the use of stimulants, it has been carried to excess, and has introduced precautions—actual superstitions—which are not without their drawbacks as regards health and the vigour of men's constitutions.

Irritants are dreaded to such a degree that the least exciting condiments in food are proscribed as hurtful. Pepper has disappeared from a great many tables, and on some salt is scarcely admitted.

The world has so false an idea of the structure of the organs and of their functions, that it trembles at the thought of introducing into the stomach a sharp and burning substance like pepper; a single grain of that substance on the coats of that organ is looked upon as poison. The world does not know that, at the least contact of an irritating poison, all our interior (mucous) membranes possess the marvellous property of secreting a viscous fluid which envelops that substance, and renders it, so to speak, inert, or at least innoxious to the coats of the organ.

We have, therefore, not to fear solid substances, containing an exciting, but not corrosive principle; their purely local effects are ephemeral and neutralised; or rather they are stimulants useful to languid organs. The true poisons are those fiery liquors which are quickly absorbed, which mingle immediately with the blood, and with and in it reach all the organs, the brain, heart, etc. It is this which renders spirits, absinthe and other alcoholic drinks, so dangerous.

But let it be well understood, insipid food is bad for the

stomach. The digestive organs need stimulants, and from the want of it sink into a state of atony ; hence so many disordered stomachs. It is more advisable to finish a repast with a piece of cheese than with insipid sweets and frothy cream. But what is much more to be avoided than stimulants, is putting one digestion upon another, and not allowing the stomach to perform this grand operation in peace. People think they may with impunity eat something light, some delicacy, between meals, before digestion is well over ; this is an error. It is not the quantity of food that in such a case does harm, but the extra work thrown on the stomach ; the labour of a second digestion, even of light dishes, before the first is over. It is unnecessarily disturbed, be it only for a trifle, and this disturbance is as injurious as if it were on account of some substantial food. This rule is important, especially as regards children, and also with regard to man after partaking of a hearty meal.

SPRING.

MARCH—APRIL—MAY.

SPRING is more treacherous than winter. In all countries it is the season of sudden changes of temperature. Cold is quickly succeeded by heat, dry weather by damp, a calm and tepid atmosphere by a sharp cutting wind.

The whole organism feels the labour of nature. The living body is sensitive, liable to reaction and surprises in the midst of these rapid changes, which in the course of the same day carry us through all climates, from the temperate to the excesses of heat and cold. Extra precautions are needed to resist these influences.

‘Spring renders chronic diseases, with fluxionary irritation, acute ; for this reason it opposes the treatment of pulmonary phthisis.’ (Ribes.)

It appears that slumbering disease germs are ready to awake like the germs of plants ; spring, like all seasons of renewals, is a bad time for persons suffering from consumption, rheumatism,

nervous disorders, and diseased brain. No constitution is safe, and the least shock may affect it. Choose your times for breathing fresh air and taking exercise. Take advantage of the middle of the day and sunshine, and return home before the evening, if your throat and bronchial tubes are at all delicate.

Colds are frequent and tenacious, pneumonia is abundant, coryza and sore throat, so to speak, endemic.

Do not throw off your winter clothing, husband your strength, do not indulge in violent exercise, leave to your body time to recover its tone. Make a moderate use of baths, seeing that the skin is not in a condition to counteract the exterior cold and to restore circulation.

Maintain warmth at the extremities ; wear woollen socks.

Modify your alimentary regimen ; take with your meat the fresh vegetables of the season.

Do not yet think of any removal ; remain within the medium in which you have passed the winter ; for in all countries, even in southern climes, spring is liable to returns of winter.

I only except those who impatiently await the first fine days to put an end to some complaint which can only be averted by a change of scene ; a violent cough, for instance, or fits of intermitting fever, which have resisted every preparation of quinine. These, and even continuous fevers, existing without any appreciable organic cause, in spite of every kind of treatment and regimen, often give way, never to return again, as soon as the patient removes but a few leagues from the spot where they first appeared.

SUMMER.

JUNE—JULY—AUGUST.

THIS is the good season for old men, weak persons exhausted by disease, convalescents and delicate chests. The warm and gentle air re-animates, and the now settled sky no longer exposes the sensitive organs to the danger of sudden changes of temperature.

The predominating morbid states of summer are biliousness and gastric complaints, with or without fever.

(Children and persons that are weak in the winter, whose constitution is phlegmatic, gain colour and embonpoint in summer. But those that are irritable and nervous suffer and are cast down.) (Ribes.)

The interior equilibrium and harmony very often depend on the manner in which the skin, that vast evaporating surface, performs its functions. Many diseases and chronic affections are due to no other cause than the drying up and inertness of the skin. When it is contracted by cold, when its pores no longer open and exhale the principles of sweat and insensible perspiration, the interior membranes become the seat of catarrhal secretions, the glands swell, the humours become acrid. It appears that the exterior and the interior surfaces of the body, the skin and the internal mucous coat, are the two poles whose activity is necessary for the play of the organs contained between those two surfaces ; if one of them be inert, the acids no longer go to the skin ; the mucous surfaces with alkaline secretions languish, and the current no longer maintains its functional regularity. This happens especially after long chronic affections of the digestive organs ; the dried-up skin no longer perspires, or, if we may so express it, breathes no longer. The treatment consists in restoring its suppleness and permeability, and summer is eminently favourable for this, in consequence of the dryness of the air and the exercise it is possible to take. Therefore, this is the season of walks, of country-life, of fresh and sea-water baths.

The country, for convalescents and old men, is what good food is for delicate and sickly children. How many disorders are there not that draw their weary length along in towns, and are put an end to by a change of scene, by living in the open air, amidst the balmy exhalations of vegetation ! How many old men and women regain fresh life in the country and recover strength to enter on a new career, to support the fatigues of this life, of whatever kind they may be !

Fresh water and sea-baths offer important hygienic resources.

They refresh the body, give tone to the skin, suppleness to the limbs; and sea-bathing especially is one of the most powerful means for restoring lost strength.

Children and aged persons may use sea-baths, but with discretion. The rule for them, as for all persons in whom reaction is weak, is to take them only short and on very hot days. Those that no longer enjoy youth and health, who lack the former warmth of blood, ought to avoid a too intense and too protracted cooling. A few minutes' bathing in the sea, especially at the beginning of the season, is sufficient, and care is to be taken speedily to restore circulation and warmth by good clothing and exercise in the sun. This is what renders the warm shores of the Mediterranean and the waters of that sea, exposed during four months to the heat of a cloudless sun,¹ so beneficial for weakened constitutions that sink without warmth. The body hardly gets cold within the bosom of those waters so thoroughly warmed, and the reaction is immediate, on passing from the bath into an atmosphere always tepid under the rays of a burning sun. The burning sand on which one walks is also very beneficial in restoring warmth to the extremities. You may wrap yourself up in it, plunge the suffering limbs or even the whole body into it, which quickly perspires under this covering of sand as in a dry oven.

What an excellent remedy for all kinds of pain, especially rheumatic, and at the same time what enjoyment and well-being, the northern shores are, for those that can stand cold and intemperate air, and have in themselves powers wherewith to warm themselves under a pale sun; these thus redouble their strength; but the Mediterranean is the sea for the weak and shivering body, whose blood is poor and lymphatic, for children and old men who have neither strength nor warmth to spare.

But where shall we take these beneficial baths of warm seawater, inflamed air, burning sands, and a southern sun? To

¹ The sea begins to be good at the end of May, and I and my children bathe in it until the beginning of October.

what point are we to steer, and where shall we find a kind reception and a comfortable home?

Unfortunately there is nowhere any establishment comparable to those of Boulogne and Dieppe, on the coast stretching for more than a hundred leagues from Marseilles to Port-Vendre; on those hot sands, so pleasant to the foot, no town resembling the charming cities of the north invites the stranger. But to recover health and strength, to restore life to perishing children, we may well give up pleasure and comfort, and settle down in some of the huts, which are grandly called establishments, on the coasts of Cette and Montpellier. And if the stream of sick travellers should set towards that quarter, no doubt the south will soon rival the north.

Our scope being concerning the means of preserving health, with reference to each particular season, and not concerning specific diseases, since we treat of hygiene and not of medical science strictly so called, we need not discuss the mineral baths suitable for particular disorders—such as the baths of Vichy, Eaux-Bonnes, Barège and others; and I shall only add that change of scene, bracing mountain air, distraction of travelling, activity excited by beholding new countries, and curiosity inspired by picturesque sites, independent of the action of the baths themselves, are excellent helps to the restoration of health and strength. The head becomes clear, gloomy thoughts are dispelled, the nerves relaxed, the appetite returns, the functions are invigorated, and the constitutional equilibrium is re-established. Seek to enjoy all these benefits of the journey you undertake, at such an expense of time and money, by arming yourself with the philosophy necessary gaily to bear with all the little annoyances of the road, indifferent lodgings, the weariness of conveyances; and do not render a trip devoted to pleasure and health a source of nervous irritation, or you had better stay at home. Do not take the baths inconsiderately, especially such as are endowed with active properties—sulphureous baths, for instance—which are so exciting to nervous constitutions. Among the baths which are particularly gentle, calming without energetic action, but simply beneficial, and which on that

account may be called hygienic, we assign to Nérís and Plombières the first rank. The waters of Plombières, for certain nervous constitutions, are true milk-baths.

Summer is the season of intestinal disorders, especially in hot countries, in which one is not acclimatised. When there is no complication, but simply slight diarrhœa, one of the most convenient and efficacious remedies is powdered nitrate of bismuth. A few pinches, forming a dose of fifty centigrammes, in half a glass of wine, taken before meals, arrest the disorder, without interfering with your diet or pursuits.

During the heat of summer let your drink be cool, but not iced. If you are not quite sure of your stomach or bowels, abstain from ices, especially between meals. Wait at least until digestion is finished before you indulge in this luxury. Taken with meals, ices seldom are injurious. Sherbet, flavoured with rum or coffee, at dinner is beneficial, refreshing, and gives tone to the stomach; whilst it not unfrequently happens that ices made with fruit and taken in the evening, shortly after dinner, disturb digestion and even produce a kind of poisoning.

AUTUMN.

SEPTEMBER—OCTOBER—NOVEMBER.

AUTUMN is the season of long quartan fevers, diarrhœa, dysentery, colic, and sciatica; fits of gout are renewed (Ribes); but it is at the same time the most favourable season for good and average constitutions. It is the holiday season, the period for country life, exercise in the open air, hunting and mental repose. Turn it to account and prepare for winter. The evenings begin to grow damp, and nights cool; take precautions accordingly, if you are delicate. Do not expose yourself to the morning fog, without having fortified the stomach, and given an impulse to the circulation of the blood. Take very nourishing food, but also much exercise; you may eat twice as much in the country as in town, and indulge in food you would not easily digest under ordinary circumstances, provided you

expend this surplus of nourishment in the open air and by continual exercise on foot or horseback, or with the gun across your shoulder.

Is not this the true life of man, the true condition of his health and strength ; and was he not made to dwell in the woods and fields, rather than to scratch on paper, seated on a chair ? But since we cannot get rid of these necessities of social life—the consequence of original sin—let us endeavour to lessen these evils by the rustic existence of autumn.

Men of the age of fifty especially, who begin to pick up flesh, whose organs become loaded with fat, whose hearts have a tendency to grow voluminous, whose circulation becomes sluggish and breathing difficult, whose heads grow heavy by substantial food and want of exertion, stand greatly in need of the violent exercise only to be found in the country in the hunting season. It is the period of life when we must not allow sloth and idleness to benumb, nor the indulgence of wealth and pleasure to enervate, nor an exaggerated fear of compromising our health to intimidate us. Do not accustom yourself to look upon your person as so very precious ; dare sometimes to expose it to danger in distant and toilsome excursions ; fatigue your body, steep it in sweat, and these supposed excesses will do you good. Such is the true hygiene of people that are sound and wish to remain so.

For children the country is a second nurse ; there, so to speak, they bring themselves up alone and almost without care. Most of the alimentary precautions necessary in towns, and so frequently inefficacious, become needless in the country ; their stomachs digest what in town they could not bear ; the bowels are invigorated, and children one despaired of rearing in town shoot up in the country like mushrooms.

For the same reason, organisations exhausted by business or pleasure, chronic affections or tedious recoveries, ought to aim at a stay in the country during the autumn. For these its calm existence, moderate exercise, even its repose and pure air, are everything.

‘ I doubt,’ says Rousseau, ‘ whether any violent agitation, any

disease arising from vitiated humours can resist a prolonged residence on the mountains, and am surprised that the baths of this salutary and beneficent air are not one of the grand remedies of medical and moral science.'

'The country,' Ribes¹ justly says, 'is change of air for the citizen and man of fashion. In the country you will successfully treat obstinate diseases, for the very reason that they were contracted in town; sick headaches, asthma, violent coughs, cramp in the stomach, &c.'

Travelling fatigues persons of spare habit and lymphatic complexion, and they do not grow fat; living in the country, where they take carriage and even walking exercise, increases in them nutritive action, and promotes the generation of fat.

The life led in the country generally restores the *embonpoint* when those who need it are withdrawn from a mode of life antagonistic to health, and whereof leanness is the consequence.

Health may be completely restored by living in the country; in some cases native air has an equally beneficial influence.

Partake sparingly of fruit, and prevent your children from overloading their stomachs with it between meals. Let their habits be regular, and do not allow them to eat or drink, except at meals. Let them learn in summer to bear hunger and thirst especially, even at play; it prevents many accidents, and invigorates their moral nature as well as their stomachs.

Regularity is as fully a condition of health as of wisdom.

¹ Ribes, *Hygiène thérapeutique*. Paris, 1860.

*EXERCISE AND TRAVELLING FOR THE
SAKE OF HEALTH.*

GYMNASTICS.

GYMNASTIC exercises are now so much the fashion, especially with young people, that I need neither recommend, nor even speak of, them, as I wish to confine myself to drawing attention to what is neglected, if not ignored, by many persons, as regards certain badly interpreted hygienic rules, or natural resources, from which we do not obtain all the advantages derivable from them.

Were I to speak of gymnastics in our colleges, I should recommend a more extensive and more frequent use of them, for an hour or two a week are not sufficient to give the muscles that vigour they cannot acquire on the forms of the class-room, or in the languid games of the playground. All has been said, and eloquently said, on the necessity of developing the physical as well as the moral powers, in order to prevent that degeneracy of future generations with which we are threatened. Families are bound to consider this with a view to the health and strength of their children; but the State has the same duty, for it is a case of public hygiene; and it is especially the duty of the heads of Universities, for morality as well as health has an interest in the profitable use and judicious management of the forces of youth. They perform this duty, for gymnasiums have been established in most of our public schools.

But this exercise, to which the pupil can devote but little time, is not sufficient; somewhat distant excursions ought to be added thereto, which may interest the mind, whilst they fatigue the body. Of all exercises, walking is the best; but sauntering about as the pupils of our colleges do once or twice

a week for a few hours, is not walking. What is wanted is free walking with an object, and in which the body performs all its movements without constraint. This plan is not easily realised, and yet it must be thought of.

There is no longer any play in the grounds of our public schools: the pupils walk about and talk; the utmost that is done is occasionally to throw a ball against a wall; but those good games, as prisoners' base, in which the whole body streamed with perspiration, are no longer practised.

Several educational establishments have already inaugurated picturesque excursions, with knapsack on shoulder, into the mountains, excursions at once amusing and instructive, and made amidst the grand scenes of nature. Would that all colleges could be organised on the English model; that our classical studies could accommodate themselves to the liberal system of British education; that our educational establishments were conducted according to the principles of the boarding school founded by our transmarine neighbours at Vevey, on the shores of the lake of Geneva! The beach serves the pupils for a playground, where they freely indulge in all the most violent games, such as football, racing, cricket; every couple have their boat in which they now sail, now row about on the lake. This is the way to rear vigorous men, whose bodies shall be equal to all emergencies, and ready to brave not only physical but also moral storms.

But this manly education, this true school of self-government, would not suit us; it would cause mothers to tremble, and families would oppose it. And then there is our Little-go to be thought of before all things else!

Now, since a total reform in our way of bringing up children is out of the question, let us confine ourselves to recommending gymnastic exercises to persons of mature age, who grow stiff by sedentary work or the indulgences of fashionable life; let them know that there is not a better means to combat general debility and maintain the elasticity of the muscles, to dilate the chest, and restore the functions of the skin. One hour in the fencing school or gymnasium is more effective in pre-

serving youth than all the appliances and palliatives of the toilet ; gymnastic exercises are especially beneficial in cases of pain in the joints and limbs, so frequent with men of leisure and luxurious habits ; these exercises are the true remedies of slight rheumatic pains that often afflict the shoulders or knees ; gymnastics, well directed, gently graduated, putting in action all the affected muscles and ligaments, rapidly get the better of these pains. All that is wanted is a ladder set up in a shed or garden, and an intelligent master sufficiently acquainted with anatomy to know the relations between such and such a position and such and such an effort or muscular contraction ; this treatment is suitable for all ages.

EXERCISE AND EXCURSIONS.

EXCURSION TO MOUNT CANIGOU.

THE most simple medical prescriptions are not always so easily carried out as might be supposed ; exercise, for instance, that is to say, setting in motion the muscular forces, to equalize nervous influence, to restore the balance between the different systems, to brace up the one and expand the other ; this powerful remedy, to which medical science and hygiene resort so often, so necessary in youth, so useful even to mature and old age, cannot always be had recourse to as much as might be desirable.

A certain moral exciting cause is needed to give to exercise the necessary impetus and strength to persevere ; and the boulevards and public gardens of the capital, or the environs of a provincial town, do not present such excitement in a sufficient degree. Walking straight on, without definite aim, simply from principle, taking a certain number of steps according to a hygienic standard, without animation, excitement, or pleasing imagination, are no doubt useful, even adequate, when the only object is to maintain a certain amount of functional regularity ; but if the blood is to be powerfully impelled, if a great nervous excitement is to be calmed down, breathing stimulated by fresh and renewed air, the system, so to speak, bathed in a vivifying atmosphere, then exercise must be taken under different conditions. This is why hunting is so beneficial to strong and robust men, who for nine or ten months of the year grow heavy in sedentary pursuits, whose vessels become congested by an indoor existence, or whose nervous system is over-excited by business or official cares. Dancing sometimes is for ladies

what hunting and riding are for men—it is their own peculiar exercise ; very often unhealthy, we admit, but yet doing good in some cases.

A thousand means have been invented to assist medical science when it prescribes vigorous exercise for patients that cannot hunt, such as women and young persons. Gymnastics, with their diversified apparatus and exercises, adapted to the circumstances and evils that are to be remedied, afford very valuable aid. Riding is of immense service, and I myself have seen remarkable results. But not everyone can indulge in it, nor is this mode of locomotion suitable for all persons.

Gymnastics and riding have their peculiar applications, and are no substitute for exercise, properly so called ; that is to say, the general exercise of the entire body, or the action of all the muscles, accompanied by a strong re-action on the skin, and attended by the diversion and emotions produced by the various aspects of nature.

Excursions, partly on horseback and partly on foot, in picturesque countries, alone are capable to restore the equilibrium which constitutes perfect health, and which is so often disturbed by the predominance of one system over the other, the exaltation of the nervous system bringing in its train disorders that indeed do not endanger life, but render it a burden, and against which ordinary remedies, as a rule, are powerless. Let me, then, speak to you on the influence of exercise in the open air, on excursions through picturesque sites, in a sharp and bracing air, and amidst the grand scenes of nature, so suited, by exalting the imagination, for maintaining our vital force.

You will not expect from me what we call medical hints ; this is neither the place nor time for them ; but allow me to give you an account of several interesting excursions, for which the neighbouring mountains have afforded me opportunities, and which I made as a physician, considering all the benefits derivable, under circumstances which ordinary sagacity and experience will enable you to appreciate, from that powerful modifier called mountain-air.

At the present day, when the means of locomotion are so easy and rapid, it may not be out of place to call the attention of medical men and the gentry to the efficacy of these changes and exercise in media totally different from the confined air of large towns and drawing-rooms in which rich people pass so much of their time. This, indeed, is no new observation ; but, in spite of the taste for travelling which is spreading further and further, we are very far yet from turning to account all the natural agents at our disposal.

I shall also seize the opportunity to dilate on some of the interesting peculiarities of the thermal and sanitary establishments with which our side of the Pyrénées is so amply provided ; on some winter stations so happily situated in the bosom of these mountains ; thereto I shall add some of the incidents ever diversifying excursions in remote localities, whose customs contrast all the more with ours the more they approach nature.

Before speaking of that quarter of the Pyrénées I wish you could always visit in my company, let me first say something about the sea, which is within reach, and whose influence on some nervous organisations I have in some cases carefully observed.

Marine excursions have one great drawback, of which I am all the more sensible, because, having been exempt from it in my youth, I have become subject to it in my old age ; that awful sea-sickness, against which no efficacious remedy has as yet been found. Hence the sea will, perhaps, for ever be a grand obstacle to journeying and settling in certain privileged countries, which would very soon be sought by delicate constitutions, were they not separated from the Continent by this disagreeable barrier, such as Corsica and Algiers, whose favourable climatic conditions I have already pointed out. The sea, nevertheless, has its advantages also, even from the therapeutic point of view ; and perhaps on account of that very constitutional disturbance it produces ; it is a great soother of the nervous system, and the fatigue consequent on this disturbance is only temporary, even in weak persons, and does not interfere

with general and permanent benefit. There is no better means of putting a stop to certain vicious habits of the nervous system than exposing oneself to this tossing about in the midst of that saline air which impregnates and stimulates the skin. I have seen some very satisfactory results from it, which have convinced me that this is another very wholesome exercise for certain nervous organisations in the fashionable world, in whom nervous irritation plays the chief part.

I will commence with mountain excursions in the eastern portion of the chain which separates us from Spain, of which I chiefly wish to speak.

The district which surrounds Mount Canigou is one of the most curious and interesting in the Pyrénées.

On one side, as you know, is Vernet, rendered famous by the marvellous cures performed by the celebrated Lallemand, and which offers so pleasant a winter abode for delicate chests and sore throats. Situate at the very foot of the Canigou, at the bottom of the narrow valley, which terminates in a *cul-de-sac*, is the establishment founded by MM. the Commandants Couder and Lacvivier, fed by an abundant and very hot sulphurous source, which not only supplies baths, douches, drink and vapour for inhalation, but which by means of pipes circulates through all the rooms and passages, and maintains that gentle heat so agreeable and beneficial to invalids. Thanks to the configuration of the soil, this small picturesque valley, almost bordering on the snow region, enjoys not only an almost always unclouded sun, but also a serene and warm atmosphere, undisturbed by the winds from any point of the compass, being sheltered on all sides by the mountains. The thermal establishment of Vernet reposes calmly at the bottom of a kind of funnel, wherein, in winter, the sun's rays are concentrated, and protected in summer against its too great ardour.

I did not find much company there, but it was select, all the more agreeable for being limited, which rendered it more united and more like a pleasant family.

And how satisfactory the management of Madame de Lac-

vivier : linen, attendance, board, all are first-rate ! The life, as a lady said to me, was that of a well-ordered country house with the extra advantage of improving one's health.

But I, who had not come as a patient, I who, moreover, have a crotchet that everybody ought to take exercise, even our delicate Parisian ladies who fly the rigours and fogs of the Seine, created quite a flutter in this peaceful colony, and disquieted my excellent colleague Piglowski, who watches over the invalids with infinite solicitude, and fears the slightest excess on the part of any of them ; I must confess to having drawn several of them into rather long walks, but then the sun was shining so brightly !

Yet I made no attempt to induce them to follow me in my hazardous excursions, for I wished to go from Vernet to Amélie-les-Bains, which is on the other side of the Canigou, taking the mountain-route, without returning to the high road. Now, in winter this is a difficult enterprise, as the stages are long and the days very short, and snow is met with in abundance.

There are two roads ; one by the mountain, which is the most difficult ; it skirts the very foot of the Canigou, crosses the high pass, and descends on the other side to Pratz-de-Mollo ; this is the summer route, when there is but little snow on the mountain. Ten hours' walking takes you from Vernet to Batz, and as it is only fifteen miles from this point to Amélie, the whole journey may, if need be, be accomplished in one long summer's day ; there is, moreover, an excellent hotel at Pratz-de-Mollo, so that the distance may be divided.

Everyone told me that this route was impracticable in winter ; but wishing to rely on myself, and seeing moreover here a capital opportunity for a mountain trip, I set off, with the guide Michel, with the intention of exploring the route as far as possible.

After a few hours walking, we arrived at the snow, but as it did not bear, we sank in, first up to the ankles, and soon up to the knees, and thus we went on for nearly an hour, but could only reach the point called *le Cheval mort*, the depth of the

snow increasing at every step, without getting firmer, and we found that we could not cross the pass with horses.

This point of *le Cheval mort* is very beautiful, diversified, and very imposing in winter, the surrounding peaks being covered with a mantle of glittering white when the sun's rays fall on it; one might fancy oneself carried to the most celebrated regions of the Pyrénées. Light airy vapours played across the ravines, above the torrents descending from the Canigou, attaching themselves like gauze belts around the rocks, reflecting and refracting the sun's rays in pale and somewhat indistinct rainbows.

After having lighted some brushwood to warm ourselves whilst contemplating the magnificent spectacle of these elevated solitudes, we were forced to descend and seek a somewhat less fatiguing route to the other side of the mountain.

The head of the Canigou appeared to us sometimes clear and unveiled, sometimes intersected by a belt of clouds, and then only its real height became apparent; for, in order rightly to appreciate, or rather to be impressed with the elevation of snow-covered mountains, they must not be seen free, and so to speak, naked; the last details are then seen with such distinctiveness that the distances are brought nearer to each other, and it seems as if one could in a few moments and without any trouble reach those summits only arrived at by many hours' painful climbing. But when a snowy peak glittering in the sun suddenly appears to you through an opening in the clouds, then it seems to touch the sky, and you are struck with its elevation above the earth.

The road left for our choice meanders half-way between the plain and the mountain, crossing deep and narrow valleys resembling ravines, and ascending bare and arid heights.

It took us two good days, one of about ten, and the other of six, hours' walking, to reach Amélie.

We made preparations to start on the second day, with a horse and an ass to carry our luggage and provisions, for there is a risk of finding nothing in the poor and remote villages one passes through, and where we had to look for shelter.

Ten hours' daylight in the month of January are something to be glad of; not a minute is to be lost for fear of being delayed and overtaken by the darkness in solitudes where it would be very undesirable, nay even dangerous, to pass the night. And yet this nearly happened to us, in spite of all our precautions.

We had breakfasted by the side of a spring with an appetite which gives to such repasts a savour and a charm only to be felt in such excursions, and no breakfast equal to them is to be enjoyed, neither at the *café d'Orçay* nor at the *café Foy* I assure you; and it surprises me that the *blasés fashionables* do not occasionally give themselves such a treat.

Fully to appreciate these rustic repasts by the side of a torrent, in the sight of grand and beautiful scenes, one must have a somewhat poetic mind. But of course it is understood that all true physicians are artists, and that our art, to be practised with distinction, requires a certain dose of imagination.

After this delicious, though frugal breakfast, which had excited the curiosity of all the inhabitants of the village of Estohér, little accustomed to see strangers amidst their mountains, and who took us for strolling players, we crossed a narrow, long, and most picturesque valley, at the bottom of which flows a torrent, whose foaming waters we saw without hearing their noise, so deep is the excavation in which the torrent rushes from cascade to cascade: it is the valley of Ballestary, which one traverses in the perpetual shade of box-shrubs as high as trees.

We wished to reach the village of La Bastide, where we hoped to find the best halting-place; we had yet two hours of daylight before us, when we ascended the steep incline of which La Bastide occupies the other side.

All went well until the moment when we attained the plateau of the mountain, and we had only to descend; but there we found ourselves in a thick fog, which wrapped us in a veil all the denser as the night was falling. Suddenly, in this darkness, our guide lost all trace of the road. Anxiously running hither and thither, making use of all his skill as a mountaineer, to

discover some trace of the way, Michel found nothing, and returned to us full of despair. The situation became critical, we could not see twenty paces ahead, and our horses already uttered that neighing peculiar to those animals when they feel they are lost. It was then our guide gave forth that cry of distress which is the signal of the mountaineers when gone astray in the mountains, and which yet resounds in my ears and oppresses my heart. Fortunately a distant voice replied ; and soon an inhabitant of the neighbourhood, returning home and well acquainted with all the footpaths of these deserts, met our gladdened eyes, and led us back to our road, and pointed out to us the direction in which lay La Bastide.

It took us one and a half hour's walking through the fog and the night to reach at last that blissful village, whose miserable inn appeared to me at that moment far more inviting than the splendid hotel of the Louvre. The value of even such a house, roof, hearth and bed can only be known by those who, like ourselves, have run the risk of spending a long winter's night out of doors, exposed to the cold and a fight with wolves, with frightened horses, and to all the accidents that may follow taking the wrong direction amidst torrents and precipices.

We were very kindly received by good people, to whom I shall ever be grateful. A fire was quickly lighted, and crackling on the hearth it filled the smoky room, which did duty for kitchen and parlour, with the aromatic exhalations of the mountain shrubs. An omelette *au lard*, fried ham, and our provisions, among which that best travelling preserve a Julien-pie was not the least important item, formed an excellent supper, washed down with the wine of the country, which in Roussillon is everywhere good, and with old Spanish wine with which Michel had filled his gourd ; for Michel is intelligent and cautious, and has a liking for comfort, a fact which will not be denied when I mention that he had provided wax-candles to give us light, whereby our table acquired quite an air of luxury, contrasting as it did with the rustic surroundings of the place.

Soon the society the village afforded made its appearance—

the schoolmaster at their head—which by the bond of confraternity which unites all the ranks of the teaching body, speedily established a kind of intimacy between us.

We sat around the hearth taking our coffee and conversing.

Lying in a miserable bed I spent the most delicious evening thinking, before going to sleep, of the hardships of the night which at one time threatened to be our lot.

The second day offered no further obstacles ; a six hours' march along well-known paths brought us to our destination.

Michel's energy and good humour were restored ; he indulged again in his endless songs and tales, and in chasing insects, for Michel is a distinguished entomologist and in correspondence with the collectors of the most distant towns of Europe. People write to him from Paris, Dresden, Berlin, to obtain the insects peculiar to the locality ; this, in fact, is his chief business. Tourists are scarce about Vernet, though I do not know why, for there are indeed beautiful excursions all round, and the most elevated and most famous points of the Pyrénées may thence be reached.

At three o'clock we arrived at Amélie, and with what delight did we not plunge into those naturally hot baths, which seem to bring out of the bowels of the earth the vitalising principle ! As for me, no fatigue can stand against a bath in a reservoir in which one can swim and plunge about, and restore suppleness to the limbs stiffened by a long march.

There are many visitors at Amélie during the winter : many of them come from Paris and every other part of France. No doubt the splendid military establishment has made known and brought out in strong relief the efficacy of the sulphurous water of Amélie. There is no room to spare at Dr. Pujade's, nor is there at the *pension Berma Bessière*. Hotels and private lodgings are full, and Dr. Genieys, medical inspector of the baths, is worn out.

As we had gone there, not to bathe, but to take the exercise that had been considered necessary, we set out the very next day on fresh excursions.

Having been unable to cross the Canigou, I determined to

go all round it in order to see it in all its aspects. We therefore directed our steps towards the picturesque town of Pratz-de-Mollo, closing with its fort the entrance into France from the side of Spain, and which we had been unable to reach in descending directly from the Canigou. It is a six hours' walk through charming scenery, and which may even be traversed in a carriage.

There we left our horses, ordered our dinner at the hotel, and continued to climb for three hours more to reach the source of the Preste, whose special virtues are well known, but which I had never visited. The establishment is situated quite at the bottom of the last valley, beyond which there are only snow-capped peaks and finally another region, viz., Spain. It can only be visited in summer, for in winter the weather is too severe. Professor Richard, of lamented memory, came hither upon the advice of Arago and Civiole to be treated for a complaint which caused him violent pain and threatened his life. He recovered his health, and was spared to us a few years longer, when another illness snatched him away from his botanical studies and brilliant career as a teacher.

Having returned to Pratz-de-Mollo by a bright moonlight, which played in a fantastic manner upon all the shining peaks surrounding us, we found at the hotel the *cuisine* and comforts of the most civilised towns.

The next morning before daybreak we set out afresh to re-enter upon ordinary life, follow high roads, railways, and put an end to our adventurous excursions.

But I can assure you that this somewhat violent exercise, practised under the conditions I have endeavoured to describe to you, has been followed by all the success you could desire.

A TRIP BY SHORT STAGES FROM THE CÉVENNES TO THE
PYRÉNÉES.

There is no help for it, we must have recourse to the hired carriage: this is the only means of travelling agreeably and profitably since the stage coach is out of fashion.

It is said that France is little suited for this manner of seeing the country, because, it is alleged, there is not a sufficient number of points interesting enough to excite our curiosity, and that it is necessary to traverse long monotonous distances before we encounter a picturesque site or work of art worthy of arresting our attention. This mode of travelling does well enough for Italy, where you cannot go ten leagues without meeting a beautiful site or chef-d'œuvre to admire. What is there, for instance, to be seen between Paris and Lyons, and what pleasure is there in taking a fortnight to accomplish the journey? Is it not more advisable to go by rail? Perhaps; but from Lyons to Marseilles what curious and interesting halting-places are there not along the beautiful river, whose vapour scarcely allows you to catch a glimpse of its banks!

I have already made this trip by short stages, visiting Vienne, Tournous, Valence, l'Ardèche, Orange, Carpentras, Grignan, &c. Now I mean to follow a cross-road, through little-known localities, and hope my readers will accompany me with pleasure.

I shall not treat of art, for I am no artist, and fear there are neither remarkable monuments nor valuable museums on my road. I shall travel simply as a naturalist, a physician, or rather as a simple inquirer, as the lover of easy locomotion, who allows successively to pass under his eye varied sites and objects; now a plain, now a mountain, now a disruption of the soil, a ravine at the bottom of which runs a torrent, and which is overhung by masses of rocks of various tints; now a smiling valley full of shade and verdure, with the minute incidents of the road, the more or less comfortable halts at inns. I know of no more

agreeable manner of spending a few weeks at the commencement of the fine season.

Choose then a good conveyance, not a close carriage which shuts out your front view, but an open vehicle, with three horses strong enough to ascend long and steep inclines, and able to go ten leagues a day with occasional rests ; select an obliging and careful driver ; look out for an amiable travelling companion, to whom you can communicate your thoughts and impressions, and who shares your admiration. Take with you a few books, such as the 'Letters' of the *Président de Brosses*, and the 'Lundis' of *M. Sainte-Beuve* ; and start, after having carefully prepared a well-designed itinerary : and I promise you a series of distractions and enjoyments worth a great deal more than all the amusements sought after by the men of leisure inhabiting large towns.

In fact, I cannot understand why many rich and *ennuyés* persons, who know not how to spend their money and leisure, do not take to travelling about ; I do not mean far ; I am not speaking of grand tours, but going about in their own neighbourhood, and under the conditions indicated. The mere compilation of an itinerary is a pleasure ; it is altered and re-altered twenty times. The study of the map becomes as important as it is to a general meditating a campaign ; it is the occupation of the spring whilst awaiting the moment of departure, for you must not start too soon. Better wait for long days and the budding forth of vegetation ; better bear a little heat than the atmospheric changes of the month of May.

If to these preparations for your trip you can add an object, that is to say, if you can fix on any particular subject of observation, that gives stability to your mind and prevents it from yielding to the unsettled inconstancy of too much independence, you will be in the most favourable position to enjoy the freshness of this open air existence, far from the clamour of the world and the worry of everyday life. As for me, my special occupation is the examination of all the mineral waters I encounter ; I study their effects for my own satisfaction, I taste and partake of them in every form ; as baths, douches, or vapour. This gives to my excursions an interest and aim ; and

my readers will, therefore, not be surprised to see me stopping at certain establishments, concerning which I may be able to give invalids useful hints and directions.

Well, we start from Montpellier for Le Vigan. Arrived at Saint-Bauzille-du-Putois, we make a rather long halt to visit a little-frequented grotto, the Grotte des Demoiselles, one of the most vast and profound of the kind : I have seen none larger in Switzerland ; and it is as interesting to the naturalist as to the mere sight-seer, in consequence of its geological conformation, and the remains of extinct animals it contains. It is adorned with magnificent stalactites and stalagmites, whose enormous volumes probably conceal vestiges of the ancient world, the bones of lost races. Professor Paul Gervais has brought to light some curious specimens, while at the head of the Faculty of Sciences of Montpellier, but greater pecuniary means than were at his disposal would be needed to clear away the soil and reach the lowest strata. By means of Bengal fire splendid effects are produced on the shining columns and drapery of the stalactites ; but, unfortunately, this means has been abused, and the alabaster with which the grotto is lined soiled by the smoke of torches and illuminations ; there are, nevertheless, halls which can only be reached by creeping along, and lofty domes like those of cathedrals in a state of good preservation.

Soon we quit the calcareous rocks, *landes*, and dry and arid soil, to enter upon the region of schist, well watered by numerous rivulets. The hills and mountains are clothed with vigorous vegetation ; chestnut trees, with their shining leaves and elegant crowns, make their appearance, and mulberry trees grow more plentiful, for in the Vigan we are in the midst of the silk country.

But alas ! this region, formerly so prosperous and gay, has for more than ten years been visited by a mysterious plague, killing the precious worm or drying up the sources of the golden thread in which it envelops its chrysalis. The labours of the learned, who had set to investigating the causes and remedies of this misfortune, had raised some hopes ; on the faith of one,

substances capable of destroying the morbid germs had been employed ; on the faith of another, only the eggs of sound insects had been used ; but neither the one nor the other procedure was successful. When we passed through the Vigan, the most careful cultivators of the silkworm were still reduced to the necessity of throwing away the produce submitted to the vapour of creosote, and that coming from the apparently most intact insects ; neither the one nor the other method had yielded worms capable of spinning fine cocoons ; all languished or died beforehand.

One fact, however, has been established—a very important fact, since it seems to demonstrate that the disease does not depend on atmospheric infection, on the presence of epidemic germs in the air of the silkworm-rearing districts, but that the cause of the evil is in the worms themselves, and that the breed must be renewed. In fact, the worms proceeding from Japanese eggs, supplied by Government, have generally done well, though bred under the same conditions as the worms produced from native eggs and in the midst of the same influences. Unfortunately the Japanese breeds are far less prolific than our own indigenous breeds, and produce only small and unremunerative cocoons. But an indifferent result is better than none at all, and, besides, the success of the Japanese eggs puts us in the way of remedies for combating the epidemic. It seems that it suffices to follow the method recommended by M. Pasteur, which consists in making sure of the perfect soundness of the butterflies destined for reproduction, and to use only the eggs coming from insects absolutely healthy. I shall not enlarge on this subject, or I should have to analyse at length the labours of MM. Pasteur and Béchamp.

The road from Vigan to Lodève is most picturesque. You leave the charming valley of the Cévennes by an ascent of several hours' length. At its foot, embosomed in dense foliage, lies the village of Avèze, and the castle belonging to the descendant of Montcalm. At the top of the ascent, perched on a hillock, arises proudly the modern gothic castle of Montdardier, built by M. de Givestons, with turrets, barbican, moat,

&c. Before reaching Saint-Maurice, on the east plateau of Lorzac, you descend into a profound valley, a true disruption of the soil by some volcanic action.

Soon Lodève appears with its manufactories, whose products are spread in long draperies of different colours along the fields and gardens, and with its mountains cultivated in terraces to their summits. We quickly cross the hill that separates us from Bédarieux and the baths of Lamalon, where we shall stop.

Parisians have the reputation of being choice, and always ready to find fault with places where they do not meet with the attention and comfort they are used to at home; but the opposite is the truth. No one accepts indifferent accommodation with better grace than the most refined Parisian lady or gentleman. I had a fresh proof of this during the visit I have just paid to Lamalon. The southerners willingly admit the efficacy of the baths they have had so many opportunities of putting to the test, but groan under the somewhat primitive simplicity of the establishment, its monastic air, and the scanty diversion it affords. But for Parisians this calm life in the midst of scenery of Italian aspect, and southern in its characteristics, is a kind of monastery without casino, without music, and without the varieties of dress; this life has a charm which certain persons of taste indeed prefer to the splendid establishments of Germany. There is a repose of mind and body, which contributes to the beneficial effect of the baths. Such was the impression of a family accustomed to all the enjoyments of Parisian life and the most refined society. They even admitted the cooking to be excellent, as varied as possible, and the pastry particularly delicate. By the side of these Parisians, so easily satisfied, I heard the criticisms of honest country people, to whose tastes the dishes were neither rich nor choice enough. They were almost surprised at not having for five francs a day iced champagne at every meal.

The road from Lamalon to Saint-Pons lies through a very beautiful valley.

From Saint-Pons to Mazamet, a town interesting by its

increase and prodigious activity—the cloth factories resting neither night nor day—you cross Mount *Noire*, the real limit of the southern region. On the one side is the south, properly so called, with the sky and warm tints of the east, Narbonne, Beziers, &c. ; on the other, beyond the slope which faces Toulouse, is still the south for the inhabitants of northern and central France, but with fogs, dampness, grey tints, and frequent rains. In going to Saint-Amand one makes a pilgrimage to the birthplace of Marshal Soult, and even to his tomb ; for he desired to be buried at the door of the church of his village ; and we may mention, with some satisfaction, that the monument is simple and in good taste.

We at last arrive at Carcassonnes, which ancient and curious city it must be the delight of an artist-archæologist to sketch and describe.

As for me, I pursue my journey by way of Limoux towards the mountains, taking the diversified road of the pass of Saint-Louis.

But I turn aside an instant to visit Pierre-Lisse, near Quillan. What is Pierre-Lisse ? A narrow gorge, a kind of gigantic crack between high rocks, rising like walls, and having the most fantastic sky-line. At the bottom of this gorge flows the torrent which eventually forms the river Aude. In the first instance I visited it in the evening, alone and on foot. One penetrates, not without emotion, into this winding cleft ; one advances, not without a certain uneasy feeling, into this fissure, which grows constantly narrower, and which seems to threaten you with speedy suffocation. In an instant I instinctively drew the blade of my sword-cane. But why draw the blade, and against whom ? Against stone giants whose masses crush you, and who from the top of their formidable ramparts seem to grin and laugh at your weakness ! But there are many things that inspire fear, though we know they are not dangerous.

I hasten to arrive at Perpignan, but especially at Vernet and Canigou. Salute, in passing at Estagel, the native place of Arago, the lofty statue erected to the great physicist by M. Pereire. Admire the magnificent olive-trees forming a veri-

table forest along the road, and am soon rejoiced by the sight of Castillet, that strong fort, so elegant and gay, which so distinctly announces the Catalan town. Fortunate times for art when the sternest buildings, even the fortifications of towns, rejoiced in gracious forms and a pure style !

Ille, the source of M. Merimée's inspiration, has fine orchards full of peach-trees, whose fruit, in spite of being so famous, in my opinion is inferior to the peaches of Montreuil.

Let us stop a moment at Prades, at the hotel of the amiable Julia, well known to tourists in the Pyrénées. She has always a pleasant reception and delicious pastry to offer you. Fortunate if you can abide in her house ; nowhere shall you find better beds or a more exquisite table !

Here we are at Vernet, to which I always return with pleasure to enjoy its cool shade, genial air, and wholesome baths.

I have met again my guide Michel, the model of guides, a true observer, with whom one acquires a knowledge of nature in roaming about the mountains. A young Russian traveller staying at the neighbouring establishment, at Mercadet's—M. de Reussner, Gentleman of the Bedchamber of the Emperor of Russia—has for the present engaged him to visit the most remarkable sites within a circumference of ten leagues, in order to complete the description of the *Guide Joanne* on this portion of the Pyrénées. He was kind enough to give him up to me for a day ; and at last, favoured by splendid weather, I was able to accomplish what I had attempted for several years—the ascent of the peak of Canigou.

The weather was all we could wish—the air settled and pure, good for walking and seeing ; snow not too plentiful—and so we arrived at the summit, and enjoyed from that elevated point, 2,800 mètres¹ above the level of the sea, the splendid panorama, extending on one side over the plains of Roussillon, the sea, and as far as Spain, and on the other over the chain of the Pyrénées. Canigou is the garden of botanists, the richest flora of the earth is spread out at its foot. Among

¹ Mètre = 1·093633 English yds.

other flowers the *ginesta purgans* at this moment covers the sides of the mountains with a golden carpet farther than the eye can reach. One almost feels as if he could fall down and worship in the presence of this picture so full of grandeur and magnificence.

Having started at three o'clock in the morning, we returned at six P.M. A good douche at once removed all feeling of fatigue.

Now we must for five or six hours climb in a carriage up the steep road to Mont Louis, a small town with a fortress, a kind of key of France, at a height of 1,600 mètres, and consequently under a very inclement and severe sky. Fires are necessary even in summer, morning and evening, and woollen coverings are never put aside. There are no fruits and scarcely any vegetables, and in the midst of summer there are sometimes frosts which destroy the potato crop, the staple resource of the country. In the month of June 1867 the leaves of the beeches were completely frozen. What a contrast between the plain and the plateaux of high mountains! Whilst one was melting at Prades people were shivering at Mont Louis, and some hundreds of mètres higher up all life is extinct. There is nothing but ice and snow, those precious reservoirs of the rivers that water and fertilise our fields!

Instead of staying in the town of Mont Louis itself you descend a little lower, towards a kind of suburb called Cabanasse. There you find an inn of indifferent appearance, but whose accommodation is excellent; the cooking is very good, and the general arrangements in many respects the same as at the Grand Hôtel. But this we have found to be the case everywhere, even in the smallest towns in this remote district.

We shall see the same thing again at Bourgmadames, the last town of France, separated from Spain and Puycerda by a simple stream only. We arrive at Miss or Mr. Antoinette's, for it is impossible to say to what sex the head of the hotel belongs. Though he wears a petticoat, he has such a beard, such masculine airs and tones, that, in spite of the costume, it is

difficult to discover in him the grace and ease of a woman. But, without clearing up this mystery, let us enter confidently ; we shall be well received, well lodged and entertained, and meet with every attention.

EXCURSION IN THE MOUNTAINS OF CATALONIA AND ARRAGON.

Bagnères de Luchon is marvellously situated for undertaking picturesque excursions in the Pyrénées. Placed in the centre of the chain, at the base of the most lofty peak of these mountains, which from Maladetta descend, on the one side, towards the Mediterranean, on the other towards the Atlantic, you have but to choose all round, making this central point your head-quarters. This is well understood by certain Englishmen, lovers of the picturesque and bear and chamois hunting. They have a particular liking for this neighbourhood, of which, together with the inhabitants of Gironde and Haute-Garonne, the patients from Bordeaux and Toulouse, they form the chief patrons. It is therefore from this point I started on my tour.

Before penetrating into Spain I reconnoitered the environs of Luchon, which are truly beautiful. One may speak of mountains without too great a fear of repeating what has already been said, considering that their aspect varies according to atmospheric conditions, the point of view whence they are seen, and also according to the mental disposition and imagination of the beholder. Mountains share with the sea the privilege of presenting themselves under aspects always new ; the least mist suffices to change the picture. The eye accustomed to the horizon of plains is constantly deceived by the moving perspective of mountains : now objects seem to approach, and the eye overleaps the distances that separate it from the most remote points ; intervening spaces vanish, the snowy peaks, with their dazzling whiteness, occupy the foreground, and a moment after recede into the boundless ether ; the eye plunges into illimited vastness, and imagination follows

it and is lost in those unknown regions. The same spot visited on different days, the same walk taken at different hours of the same day, are sometimes so altered, that they are no longer recognised ; and thus the tourist may enjoy sensations and profound emotions without seeking new and wild scenes afar off. The most graceful point of view easily becomes terrible by a simple alteration in the atmosphere ; a slight mist wafted onward by the wind, or condensed by a sudden cooling of the air, is sufficient.

I procured myself the pleasure of such an emotion by starting alone and with doubtful weather to repeat an excursion I had made the day before, accompanied by a guide and under a bright sky. My object simply was to ascend the mountain that commands Luchon, at whose foot the town is situate, to make the tour of Superbagnères, one of the prettiest and easiest in the country. Instead of taking the road I had followed the day before, I went by a more direct footpath across the pine-forest with which the mountain is clothed, but soon the path disappeared in the midst of rocks and ravines, when it becomes necessary instinctively to march towards the goal one wishes to reach. It is somewhat difficult to find your way out of the labyrinth of the forest, and to reach the top of the mountain. I reached it at last, but scarcely had I taken possession of the last hillock, and was preparing to enjoy the view I had admired the day before, fixing my looks on one side on the chain of snow-capped mountains, commanded by the Maladetta, and plunging on the other into the deep valley where Luchon is situate, and through whose distant windings flows the torrent of the Pique, when I found myself enveloped in a thick fog. Now this mist which, seen from the base of the mountain, appears but as a slight gauze, agitated like a veil by the wind, so intercepts the light that at a few paces' distance objects become totally invisible, so that the traveller finds himself very soon placed, as it were, in the midst of a boundless sea, wherein he is lost, and scarcely dares to leave the kind of rock on which he is placed.

The situation might become embarrassing and even dangerous

if the fog should become denser, and the imprudent tourist, a stranger to these localities, having no knowledge of any of the accidents of the soil by which the mountaineer finds his way in the midst of darkness, would run the risk of wandering about on these inhospitable heights, and being compelled there to spend the night, unable to return to his hotel. And God knows what such a night would be ! not on account of the cold and inclemency of the weather, but this carpet of verdure on the top of the mountains, so pleasant during the day and in the light of the sun, at night becomes the abode of wolves and bears, which roam about in flocks. And, in fact, scarcely had I taken some steps on the mountain crest to return, when I found myself face to face, not with a wolf or bear, but their enemy, the defender of the sheep, an enormous mountain dog, with a white head and black body, who approached me with a threatening air, as if he meant to punish me for intruding into his solitude.

I did not dispute the matter with this redoubtable host, but respectfully gave him the wall and hastened onward, well pleased to see him squat down quietly, no doubt in expectation of a more worthy foe.

I escaped with this fright. I had proceeded only a few paces in my descent, when I emerged from the cloud, and found myself again in full daylight, with the pine-forest right in front of me, and in the midst of a large herd of bulls and cows, whose physiognomy had in it nothing to inspire fear. I again, as well as I could, crossed the forest, and was lucky enough to stumble upon the right road. But thenceforward I was well impressed with the great difference between plain and mountain : on the latter nature is stern, and you must not entrust yourself to it without experience and without a guide. And, in fact, witnesses are not wanting to give you warnings on this point. Thus a short distance from Luchon, in a gorge which leads to Spain, an inscription on a black cross, planted at the foot of a rock, gives you an account of a young and imprudent tourist, who, wishing last August to traverse without a guide this to him unknown district, lost him-

self, was overtaken by the night, fell from the top of the rock upon the road, and was killed.

But, independent of the dangers one incurs in going about alone, ought we not to enable the guides to earn a livelihood, and to encourage an occupation which these honest fellows can only pursue for three months in the year, and which gives them the means to maintain their families during the rest of the year? This company of guides, moreover, has other claims. They know all the localities most minutely; they know by heart all the traditions of the country, and relate them with *naïveté*; they show you the stone where Saint-Aventin was beheaded, the place where his body was miraculously discovered by oxen, and the chapel built on the spot to which the saint directed his steps, like another Saint-Denis, carrying his head in his hands. And, further, how shall you know the proper season for the different excursions; foresee the storm which announces itself by a small insignificant cloud hanging round the side of a peak, and which speedily will surround the mountain, and pour forth torrents of rain and electricity? How shall you judge of the capricious effects of mists and fogs which plunge the mountain-tops into darkness whilst the sun is shining in the valleys? And yet one excursion is interesting only when the sky is perfectly serene, whilst another is more agreeable when the sky is slightly overcast. Ascend, for instance, to the summit of Mount Monné when it is cloudy; let the slightest fog prevail on the point around which the chain of the Pyrénées unfolds its immense amphitheatre, whence on one side your glances plunge into the plain of Toulouse and Tarbes, whilst on the other you can count all the snowy peaks of the chain from one sea to the other, and you will have lost your trouble and this magnificent spectacle will be non-existing for you. But, on the other hand, such a day would have been very favourable for a short trip in Spain to visit Bosort, returning by the charming valley of Saint-Béat.

But, as regards Spain, it is time to enter it, if you will accompany me.

I started, accompanied by one of the oldest guides of Luchon,

famous by his excursions in the Pyrénées, of which he knows every pass and gorge, across which he has many a time pursued the bear, chamois, and wild goat, or directed the steps of the curious traveller. There is not a peak whose name is unknown to him, not a *port* (this is the name given in the Pyrénées to the points by which one can cross the chain and pass from one valley to another) which Jean Sors Argarot has not ascended at all seasons—in summer to guide travellers, in winter to carry bales of merchandise to Spain, or in conducting mules. He was one of the guides in the ascent of the Maladetta, happily accomplished for the first time in 1842, by MM. de Franqueville and Tchihatcheff. Since the unfortunate attempt made in 1824, and in which François Barran, one of the most distinguished guides of Luchon, had perished, no one had dared to renew the experiment.

In Argarot's family the office of guide descends from father to son, and the genealogy of this family is very ancient. It is even said to date from a rich and powerful baron at the time of the Saracens. We shall not attempt to clear up this historical point, but confine ourselves to mentioning that the father and son now living are two excellent guides—the one a daring mountaineer, fearless in tracking the bear, full of resources for pitching the tent at night and preparing dinners in his adventurous excursions, always ready to enliven the repast by some merry song in Spanish or *patois*; the other a jovial youth, who is melancholy only when provisions fail, and he is afraid of not being able to satisfy his powerful appetite.

It was with the father that I undertook my trip to the mountains of Arragon and Catalonia. The road usually taken to enter Arragon passes over the port of Venasque, a narrow passage situated at the top of the mountain, which is only reached after having crossed several glaciers, and climbed up many a rocky footpath. It is somewhat hesitatingly that the traveller for the first time sets his foot on the bridges of snow suspended above the torrent, or entrusts himself to his horse on those slippery slopes, whence the least false step would precipitate him into the abyss. But soon he gets accustomed to those

giddy footpaths, now on the rocks, now on the ice, which the horse and the guide walk along with so much ease; and is well rewarded for his fatigue and fear when, having reached the narrow pass which forms the boundary between France and Spain, he debouches into the first valley of Arragon, the immense blue carpet of the Maladetta facing him, the name 'cursed mountain' no doubt being due to its being inaccessible to man. A few steps more or less in these elevated regions, and the traveller is either in a misty atmosphere, or under a sky resplendent with light. It happens very often that on this side of the pass and on French ground he is enveloped in fog, while a few paces farther on, beyond the pass, the air is quite translucent. The weather is fine in Spain, when it is gloomy or even rainy in France, and at the distance of a few mètres.

This phenomenon is fully explained by the disposition of the mountains and the direction of the winds. I have seen it produced before my eyes, while descending the southern slope of the mountains I had just crossed. The north wind brought from France damp vapours, which, clearing the chain of mountains, spent themselves on the other side like torrents of smoke. But as these vapours arrived in the valley of Arragon, gliding on the flanks of the mountains, struck by the rays of a burning sun, as they descended into a warmer atmosphere they were dissipated in saturating the air with moisture, and this in a higher degree as the air was hotter, thus passing into the state of transparent and invisible vapour. Let a change occur in the direction of the wind; let the south wind blow, and carry into valleys less heated this air saturated with moisture, and the water will at once be precipitated in the form of a fog or resolve itself into rain. It is thus high mountains become reservoirs of the rivers that feed our plains; that by the cold prevailing on their summits they condense into rain or snow the vapours brought to them by the air which has taken them up in the lower and warmer regions, and that by this continual interchange there is established an immense current from plains and seas towards elevated points, and from these latter to plains and seas. But, by an admirable providence, a great portion of

the aqueous vapour of the atmosphere is on the mountains condensed into snow, so that these frozen masses, accumulated during winter, and melting only slowly under the influence of the summer's sun, maintain during the whole year the stream and rivers that fecundate our fields.

And since we are engaged in contemplating these harmonies of nature, these splendid laws that govern the world, is it not a marvel to see with what care these waters which descend from the mountains are prepared for our wants, and how they gradually acquire the qualities fit for our organisation? The water which is the product of melting snow is heavy and disagreeable with a peculiar flavour that characterises it. Deprived of air, and containing scarcely any foreign matter held in solution, it almost resembles distilled water; in this state it is not drinkable, and would be unwholesome, but soon it is tossed about and becomes mixed with air, and consequently light and vitalising. Those cascades which are the ornaments of mountains, and where the water in its fall is broken on the rocks, those torrents where it rushes foaming over granite blocks that divide and retard its course, were not made merely to please our eyes. It is there water acquires those qualities we discover in our rivers and springs—combines with air and dissolves the mineral and organic matters necessary for its composition—so that on its arrival in the plains it no longer possesses that crudity which distinguishes it on the mountains and in torrents.

Is it not to this property of mountain water that we must attribute the want of quality in certain products, such as milk, which one would expect to find particularly savoury on those beautiful pastures where the flocks of the Pyrénées are grazing, and which, on the contrary, so frequently is poor in quality and disagreeable in taste? There is here evidently a general cause which affects animals apparently so well fed, for cows of the finest breeds brought from Normandy, and yielding from twelve to fifteen litres of milk a day, and very fat and rich milk, very quickly degenerated in this respect on the pastures of these mountains, and soon only furnished four or five litres of very poor milk. I must, however, except sheep's milk, which in

some districts I have found to be excellent. I shall return to it when speaking of cheesemaking.

Many of the exchanges between earth and atmosphere, besides those of watery vapour contained in the air, take place on the mountain peaks. All those peaks, all those rocky points rising up towards heaven, attract, like so many lightning conductors, the electricity from the clouds, or serve to take from the earth excess of fluid which accumulates on its surface, by combining it with the opposite fluid of the atmosphere. It is at the top of mountains, between the peaks and clouds, that the most frequent discharges of electricity take place, as they do between the poles of a galvanic battery. In these solitudes, inaccessible to living creatures, there occur meteorological phenomena, terrible in their effects, and which would render the earth unfit for habitation were they to take place in the parts reserved for organised beings. Therefore, also, in those regions everything, even the plants, has a form appropriate to the atmospheric circumstances of which we have just spoken. There are no longer varied forms as in the plains, no trees spreading their boughs and shaping themselves into domes like chestnut and oak-trees; the pyramidal form prevails everywhere, as may be noticed in the pines covering these mountains, and reaching the upper regions of larger plants; their extremities, shooting up towards the sky, concur, no doubt, with the needle-like rocks in the production of the electric phenomena.

After contemplating from the port of Venasque the imposing panorama of the Maladetta, and the wild valley which lies at its base, and the torrent foaming at its foot, we begin to descend the southern slope of the boundary mountains of France, and to penetrate into the first valley of Arragon. At the bottom of it is the *hospitium* of Venasque, destined, like that of France, to give shelter to the travellers that are about to undertake the ascent of the mountain and the passage of the 'port.' These *hospitia* are important establishments, maintained by the communal authorities, and leased to a 'hospitalier,' charged with the entertainment of travellers. Neither luxuries nor any of the conveniences or comforts of life must

be looked for in these inns, which for one portion of the year are buried in snow. A large room, with small windows in its very solid walls, a large fire in the centre, constantly kept up, and whose smoke escapes through a hole in the roof, allows travellers to warm their benumbed limbs; a large cauldron, suspended above the hearth, contains the soup *à l'huile* that is to comfort their stomachs.

I have always thought that it is not necessary to go into the interior of America, or into any country usually called barbarous, to meet with savages, and that it suffices to go two hundred leagues away from Paris to study beings and manners as different from our civilisation as those to be encountered on the banks of the Missouri, among the tribes of the Big Bellies or Black Feet. This opinion of mine was confirmed by my recently seeing a tribe coming from those regions and conducted to Paris, the individual members of which certainly are not further removed from our ideas of civilisation—not more savage, in one word, than the inhabitants of certain remote valleys of our own mountains. Some Indians presented in 1845 to the Academy of Sciences, and who had the honour of performing their grotesque dances before the Royal Family, seem to me even higher in the scale of civilisation than certain shepherds who spend their lives in watching the flocks on the plateaux of the Pyrénées, and making cheese of the milk of sheep and goats. These shepherds, it is true, are painted neither red nor blue, are not bedizened with variegated plates of metal, nor do they wear rings in their noses or shell necklaces. Their whole dress consists of a sheepskin, a poor pair of trousers, and sandals on their feet. But are they less savage on that account? What shall we say, for instance, of those tribes of cheesemakers, such as that I met with on lake Oo, living in dens dug in the earth at the foot of a rock, spending whole months in these desert regions, far from all human intercourse, and sleeping promiscuously, men, women, and children, of every age and degree of relationship, on a litter of ferns, scarcely covered with rags? What are the ideas and what must be the morals of human beings thus thrown together?

Can we say, to bring them nearer to us, that they worship the same God and serve the same king? But I am not quite sure that their god rises above the wooden saint, coarsely carved, that adorns the niche of their church; as to their ideas of government, they are made clear to them only when the conscription reaches and takes hold of them, and our officers can tell whether their education and civilisation has not to be begun with the very elements.

The hospice of Venasque and its inhabitants scarcely presented a less savage spectacle, and I am tempted to believe that the repast of a North American tribe could not be more repulsive than was that which was set before us. Yet I do not wish to abuse these *hospitia*, so fortunately established in these lonely valleys. How many poor travellers owe their lives to them! For the poor man who possesses nothing is taken in, warmed, fed, and sheltered like him that can pay, and should he fall ill, the 'hospitaller' is bound gratuitously to bestow on him all possible attention, until he is able to resume his journey. The hospitaller's business, moreover, is hard enough; it requires great courage to remain in these districts, threatened by bears and wolves and so severely tried by the elements.

'But a few years ago,' says M. Alb. de Franqueville,¹ 'a terrible avalanche fell from the crest of the mountain on this said hospice of Venasque, and buried it completely. All its inmates perished. The hospitaller, who had gone to Venasque for provisions, on his return, found nothing but a heap of snow, the mournful sepulchre of his numerous family. The remains of the victims were not recovered until the spring.'

The valley of Venasque is distinguished from the valleys on the French side both by the aspect of its inhabitants and its vegetation. Scarcely have we set one foot on Spanish ground, on this side at least, but we meet with a more vigorous race of men, and, above all, persons suffering from *goître* disappear entirely. To what cause is this sudden change to be attri-

¹ Franqueville, *Voyage à la Maladetta*. Paris, 1845. 18mo.

buted? To the peculiar origin of this race, the blood in its veins, or the climate and the same atmosphèric conditions which cause box to grow luxuriantly on the other side of the Pyrénées, whose sides this plant clothes in a bright green, whilst it is scarcely found in our valleys? This latter opinion seems to me the most probable, seeing that in a miserable village I passed through on the next day, and situate in a narrow valley, the most horrible goîtreux, crétins, and cagots presented themselves to my view.

The stream one follows to arrive at the town of Venasque offers several fine falls, and its banks are clothed with a rich vegetation. The blue and yellow gentian, the blue iris, as pretty as that of our gardens, grow there in great numbers, and higher up the mountain several varieties of the lily display their dazzling whiteness,

The small town of Venasque offers nothing remarkable. It possesses a small fortified castle, a governor, and a garrison of about fifty men; but its poor and miserable appearance does not prevent its being rich through its trade in mules. Undoubtedly it formerly was the abode of noble families, for most of the houses have coats of arms over the principal entrance. There is no appearance of shops, and yet on entering the stall of a paltry mercer where you expected to find about a penny-worth of thread, beautiful silk stuffs embroidered with chenille of every colour, with gold, silver, and steel, will be spread out before you, for the ladies of the neighbourhood think much of dress.

Early next morning we ascended the mountain on horseback, to continue our journey and penetrate into another Arragonese valley, which was to take us to Vidallé, in Catalonia, where we intended to sleep. Our breakfast was spread in a smiling meadow, on the edge of a stream, whilst our horses grazed around us. No flora is richer than that of this valley; lilies, hyacinths, rhododendrons, were in full bloom, as well as a delicious heather, scattering around a perfume of jasmine to raise the envy of Parisian ladies.

Here I had an opportunity of putting the knowledge and

resources of my guide to the test. I took it into my head to change our route by crossing the mountain to sleep at the hospice of Vielle, situate at the foot of the 'port' of the same name, by which we were again to cross the chain and re-enter France, after having visited the town of Vielle, in Catalonia. Jean had never followed this road, except thirty-five years ago, when he made war in Spain as a mountain-chasseur. But in Jean the instinct of locality is strongly developed, and he moreover knows everybody. There is not a village in which he does not meet with a friend, or a woman he has known as a young girl; not an isolated farmhouse, not a shepherd's hut, where he is not sure of finding some companion in adventures ready to direct him. And if by chance you should run short of money, be not troubled; Argarot will get you credit.

Behold him, then, casting a look around, and enquiring about the road of a mountaineer breeder of mules, whose hut we had just discovered. We strike into our new path, Jean always singing in Spanish or patois, but also paying attention to the natural features around, so remarkable in this neighbourhood by their contrasts of vigour and harshness, their blooming meadows, and deeply riven clefts.

After ascending for several hours, in following all the sinuosities of a broken ground, we arrive on an elevated plateau, where we make halt by the side of a herdsman of cows, bulls, and mules. What a life is that of these shepherds, who spend the whole summer in these solitudes, far above the snow, without descending into the villages, whence the coarse bread and oil, composing the soup which is their only food, are brought to them! Their only shelter is a few stones, and their only society their flock; without mentioning the wolves that come prowling and howling around them all night. The one we encountered just then was alone, without dog, and with no other weapon but a stick. The night before the wolves had carried off a young mule, traces of which we soon found on stones dyed with blood up to the spot where lay, not its body, but its skeleton, still fresh, and denuded as cleanly as the cleverest dissector could have done it. And a furious fight must have

taken place in the darkness between wolves and eagles, for the place was strewn with the feathers of the latter.

Continuing our road, and before arriving at the village of Neto, a horrible village full of the most repulsive victims of goitre, we skirted a pine-forest, the abode of the wolves just spoken of, and situate above one of the deepest ravines I have ever seen. This spot is quite equal to any of the most beautiful and wild sites of the Alps. You soon debouch into another valley, whose boundary between Arragon and Catalonia is formed by the Gave. This valley rises, whilst growing narrower, to the hospice of Vielle, and crosses an uninhabited country of lonely forests, virgin forests where the trees grow and die without being touched by the axe, without serving domestic or industrial purposes. Nothing is more sad than the aspect of these forests, where immense trees, deprived of their bark and whitened by age, lie on the ground like enormous skeletons, which imagination, without an effort, transforms into the skeletons of strange and gigantic animals. These regions, on one side especially, are the abode of bears ; on the other of chamois and wild goats. Here these animals are hunted in their most inaccessible retreats, and here in 1844 perished an Englishman passionately fond of the chase. In leaping from one rock to another his gun went off, and several bullets pierced his arm. Having been carried to the hospice of Vielle, whither his wife followed him, he died of his wounds before M. Ph. J. Roux, who was then at Luchon, had time to reach him.

The next morning at daybreak, in a piercing cold, we climbed up the steep ascent of the 'port' of Vielle, but the fog was so dense that I cannot give you any idea of the features of the country we passed through. On the other side of the 'port' the road descends over a long tract of snow, in the midst of which the Spanish muleteers, mounted on their handsome mules, caparisoned with red acorns and hung with sounding bells, produced the most charming effect. Our descent at last brought us into the valley and small town of Vielle, which still bears the traces of the ravages the Carlist bands committed there five

years ago. Vielle is the chief town of the valley, the seat of the governor and local jurisdiction.

After a poor breakfast we re-entered France by the pass of Portillon, not without casting a last look from the top of the mountain on the beautiful valley which stretches on the right towards Vielle, and on the left to Bosort, and the French valley of Saint-Béat.

Mountainous countries undoubtedly possess many charms, but one gets tired at last of having the prospect always confined by enormous masses which rob you of the sun long before he goes down. One begins to regret the vast horizon of the plains, over which the eye ranges without obstacle, and learns to understand the melancholy which seized Belgian and Dutch prisoners carried in the course of our wars into the mountains of Catalonia, as well as the regret of the mountaineer when he loses sight of the diversified landscape and the picturesque sites to which he has been accustomed from his childhood.

Another drawback of such countries is that they constantly present to the eye verdant mountains which allure you to walks which one cannot undertake without fatigue and labour. The least walk is a trip for which one's strength and the weather must be consulted, and which one cannot undertake merely in obedience to caprice and fancy. Here there are no walks for the philosopher and thinker who loves to saunter along without preoccupation, a book in his hand, or quietly to loiter on his way and indulge in his reflections; at every step there are fresh difficulties.

EXCURSIONS IN THE PYRÉNÉES.

LUZ, SAINT-SAUVEUR, CAUTERETS, GAVARNIE.

PLEASANT and important excursions may be made around Barèges, indemnifying the invalid able to walk or mount on horseback for the dreariness and ennui of the place. The Tourmalet, the Pie du Midi, the valley of Luz, Saint-Laurent, the peak of Bergons, the grotto of Gèdres, the circus of Gavarnie, Cauterets, the cave of Goube, the Pont d'Espagne, Vignemale, &c., offer to tourists all they can desire in the way of picturesque or grand views and of difficulties to overcome. Let us set out with Tro-ye, the guide *par excellence*, a bold rider who knows the rules of discretion, who appreciates the duties and responsibilities of his profession, and sets his pride on carrying out the most daring enterprises without ever compromising the safety of the traveller. It is marvellous to see with what care he prepares for an adventurous expedition ; how he consults the weather, prepares everything that is necessary, selects the men that are to assist him in difficult straits, foresees the accidents that may arise from the piercing and rarified mountain air on organisations accustomed to breathe the air of the low lands. Wherever we shall go with Tro-ye we shall encounter the spots where he has guided the steps of the young Duke de Montpensier, the most enterprising mountain-climber, who would not leave one difficult pass of this district without overcoming it, one unapproachable peak without attempting its ascent; wherefore also the Duke is known to all the shepherds of this canton, who love, cherish, and admire him, as men must have loved, cherished, and admired Henri IV. when he competed in races and wrestling matches with the young Béarnais, the companions of his childhood.

After having ascended the *Pic du Midi* from Barèges, which peak presents a panorama analogous to that which I had admired from Mount Bagnères,¹ we took the road of Cauterets, passing through Luz and Saint-Sauveur.

Luz is a pretty village, without thermal waters; but the neighbourhood of Saint-Sauveur, and its central position between Barèges, Gavarnie, and Cauterets, make it convenient head-quarters for travellers intending to visit those places.

Saint-Sauveur is composed of about thirty houses, gracefully scattered over the side of the mountain at the entrance of the defile which leads to Gavarnie, whose torrent flows at its base. The bathing establishment is a miniature, proportioned to the disposable volume of water and the number of patients the narrow and solitary street cut in the rock can accommodate. Its water is sulphureous, rich in *barégine*,² and so unctuous that, on plunging into it, it seems, as invalids say, as if one plunged into a bath of milk. For this reason it is much visited by ladies suffering from neuralgic affections, abdominal pains, or exhausted by frequent confinements. Saint-Sauveur has nevertheless lost much of its ancient splendour; yet caprice and fashion alone can account for this kind of disfavour.

Two roads lead from Saint-Sauveur to Cauterets; the one is the high-road which traverses the valley of Luz, and at *Pierrefite* enters the narrow gorge at the bottom of which Cauterets is situated; the other crosses the mountain, and is only practicable for pedestrians or horsemen. We selected the latter, and, after a toilsome ascent, went down into the valley of Cauterets, passing near the grange whence Queen Hortense admired the view, and which bears her name.

I visited Cauterets without going to Lake Gaube, which is about the same thing as saying that one had been to Paris without seeing the Pont-Neuf. Here is the reason why I was denied this excursion:

After having visited Raillière, I was pursuing my road to go

¹ See *ante*, p. 39.

² A glairous substance, so called because it was first discovered in the mud of the springs of Barèges.

to the establishment of Little Saint-Sauveur, situate at half a league from Cauterets ; and, very far, I assure you, from seeking excitement, I quietly followed the torrent which boisterously flows past the rocks that oppose its course. Near Little Saint-Sauveur the water of this torrent, falling from a certain height, flows over a rapid incline, whence it anew precipitates itself into a kind of basin, presently to resume its tumultuous current. I was herborising by the way, and perceiving at the edge of the water, precisely by the first fall, some of those gelatinous productions analogous to those which are deposited on the stones of running water, like a soapy ointment, I approached to gather some. In stooping I felt one of my feet slipping, then the other, and, losing my balance, fell under the cascade, which carried me away like a straw, rolled me on the kind of glacia formed by the rock, and soon cast me down into the basin, where fortunately I found myself right in the middle of the water, without having struck my head against the rock, in which case I should have been dashed to death. Thanks to the instinct of preservation, which in such a moment is more available than presence of mind or reflection ; on re-ascending to the surface I at once recovered from the first stunning sensation, regained the bank by swimming through that icy water, without even feeling the cold ; and, strange to say, landed with my walking-stick in my hand, as I had fallen down ! I was saved, but my legs were so bruised that I could not walk ; people came to my assistance, and, after some rest at Little Saint-Sauveur, I could resume in a carriage the road to Cauterets. After such a dangerous leap, which trout only may execute without danger, I was compelled to renounce my project and regain my lodging.

I had gone to Cauterets with the intention of visiting all the sources of the locality ; I was to have crossed Vignemale to go to Gavarnie, passing by Lake Gaube and through the Pont d'Espagne. All my arrangements had been made for this enterprise, which is not without danger, since two young men perished, having been overtaken in the midst of the Vignemale by one of those storms which are more terrible on the moun-

tain than even at sea. Tro-ye had selected his men, was provided with iron-shod staves, clamps, and sandals, or clogs, safely to cross glaciers and snow-fields ; he was ready, when we were compelled meekly to return to Barèges. Such are the circumstances under which I went to Cauterets and did not see Lake Gaube.

I should not speak of Gavarnie, a place so famous that it has been described a thousand times, did I not wish to point out to you a project which would complete the *ensemble* of the imposing scene presented by this chaos of rocks raising their heads up towards the sky. Before arriving at the circus properly so called, you cross a wide, arid space, which is nothing but the dried-up bed of a lake, anciently formed in this spot by a torrent fed by cascades and melting snow ; this torrent burst its dikes, and the waters finding an issue between two rocks, the lake disappeared. It must have been a fine sight when the circus, its cascades and slopes covered with snow, were reflected in the waters of the lake as in a mirror. Now a few blocks, thrown into the narrow fissure through which the water escapes, would suffice to retain this torrent, and again to cover the dried-up bed of the lake, to fertilise its banks deprived of verdure, to animate this dull and dreary landscape, by restoring to it that shining surface, in which would be reflected the summits of the evergreen pine-trees and the blue flowers of the iris which clothe the rocks around.

This simple idea of restoring the lake of Gavarnie had not occurred to anyone until it struck a man of taste, when he visited this neighbourhood as an enquiring tourist and public administrator. M. Duchâtel, since then made Prefect of Toulouse, having communicated this idea to his colleague, M. Barre, Prefect of Tarbes, an exploring expedition was organised, in company with two young engineers, to survey the ground, and from this examination it appears that the project of restoring to Gavarnie its ancient lake—this lake which would restore the beauty of the site—is not only easy of execution, but will be of great advantage to the valley. It will be a god-send for the country by the large number of travellers this lake will attract,

and the way in which in future the course of the torrent will be regulated. Such an embellishment must be approved of by the most severe taste ; it only restores to nature what accident deprived it of.

I have nothing to say as regards the picturesqueness of the Eaux-Bonnes, which are known to everyone, and especially to the Parisian world, which assiduously frequents them ; nor of the Eaux-Chaudes, the neighbours and rivals of the former, unless it be that these two stations are joined together by a picturesque road, boldly cut in the rock, and winding with it according to the sinuosities of the torrent.

The great phenomena seen on the mountains at every step conduce to meditation—the study of nature, its products, the revolutions of the globe and their causes. Wherefore it is not a rare thing to find naturalists even in the poor villages of the Pyrénées, and a kind of *savant* even under the humble garb of the mountain shepherd. The fame of these peasant observers, who have taught themselves by contemplating the works of God, has penetrated even into the bosom of the Academy, and spread to *savants* by profession.

There is not a botanist or geologist who is not acquainted with the name of Gaston Sacaze, of Béost, the cowherd, who, while still young, knew all the plants of the Pyrénées, and who afterwards set to learn reading, and then to study Latin, to compare the descriptions of authors with his own observations, and sometimes to correct them.

Sacaze, without quitting his mountains, without seating himself in the academical chair, is become a true *savant* and an authority. Others, less celebrated, such as Philippe of Bagères, Martre of Luchon, have successfully cultivated mineralogy and botany whilst tending their flocks.

In the heart of towns far from the centres of scientific movement science has also its adepts, paying it a homage which is all the more pure for being disinterested, without fame or profit. Let us then, by the way, honour these men when we meet them, and let us not quit Bayonne without visiting the beautiful collections of natural history of M. Darracq, a

chemist, in the Faubourg de Saint-Esprit. We shall feel no want of interest in following him through his cabinets, where he has brought together at his own expense, and with a perseverance which can only proceed from a pure love of science, a complete collection of European birds, a herbarium of all the plants of the Pyrénées, and mineralogical specimens equally interesting.

Had I not unfortunately been turned aside from my road by an unforeseen circumstance, I should not have missed going not very far from there to knock at the door of a *savant*, whose reputation, overleaping the narrow limits of the small town where he has settled, has, with his labours, spread throughout the learned world. Is it not a marvel to find at Saint-Lever a man like M. Léon Dufour?¹ Amidst the duties of a medical man, without any other resource than his instinct of observation, and nature before him, without any other stimulus than the desire to penetrate its mysteries, M. L. Dufour has placed himself on a level with the masters of science, and earned the distinction of correspondent of the Institute by his important researches into the structure and organisation of animals. And if you knew how modest the life of this learned man—how modest his pretensions! He would not have failed to give us a kind reception; he who so gracefully does the honours of his cabinets, rich in the curious products of natural history, which reach him from all parts of the globe; he who did not disdain to teach all the children of Saint-Lever botany!

¹ M. Dufour died at Saint-Lever in 1865.

THE CHAIN OF THE PYRÉNÉES.

FROM BAYONNE TO PERPIGNAN.

WHEN people speak of the baths of the Pyrénées, at Paris at least, they only mean the group of famous sources collected in the upper part of the chain between Bagnères de Luchon and the Eaux-Bonnes: the Lower Pyrénées, as far as Bayonne, are scarcely visited, and the whole eastern portion of the chain, as far as Perpignan, is almost unknown to travellers who make the tour of the Pyrénées. Though there be a kind of injustice in this exclusive preference, it is easily understood. I think, nevertheless, that this inveterate habit of tourists and frequenters of watering-places will soon change, and wish, in the interest of their pleasure and curiosity, that they may not persist in their routine. They ought not to confine themselves to the everlasting though magnificent promenade of the Eaux-Bonnes at Luchon; the whole extent of the Pyrénéan chain, from Bayonne to Perpignan, merits to be visited.

Perpignan forms the counterpart of Bayonne at the other extremity of the immense chain which bathes one foot in the Mediterranean and the other in the Atlantic. Perpignan is situated at the foot of the Pyrénées in the east, as Bayonne is in the west; these two towns touch with one hand the last links of this great chain of mountains, and the sea with the other. The one and the other are like two advanced posts on two main routes to Spain, wherefore each is defended with a castle and well-kept walls. The Moorish architecture of the Castillet, and its other monuments of pretty rose-coloured brick, give to Perpignan a more original physiognomy, whilst Bayonne owes to its beautiful river a more imposing aspect. I prefer Bayonne to Perpignan; where, moreover, shall we

find more hospitable people than at Bayonne? Pau and Bayonne are cities essentially created for social intercourse.

I shall trace the itinerary with a view to tourists who wish somewhat to quit the beaten paths ; and if they are tempted to do so, they will, I am sure, not regret having yielded to the temptation.

I assume the tourist to leave Bayonne and arrive at Bagnères de Luchon by the usual route.

Bagnères de Luchon is at a short distance from Aulus ; by crossing the mountain the one may be reached from the other in a day. This road is not practicable for carriages throughout its whole length : one portion only can be thus travelled over ; the rest of the journey must be made on horseback. But as the lovers of mountain excursions can go from Luchon straight to Barèges, without going round by the high-road through Estenos, Montrejeau, Laanemezan and Escaladien, they may visit Aulus without making a *détour* through Saint-Goudens and Saint-Girons. The itinerary I propose is as follows :

From Bagnères de Luchon to Portet, by way of Saint-Béat and Aspet, in a carriage ; from Portet to Castillon, partly in a carriage and partly on horseback ; and from Castillon to Seix, adjoining Aulus, in three hours and on horseback, by passing through the valley of Bethmale, almost at the foot of Mount Vallier and through Core.

If from Seix they wish to go to Spain, it will take them five hours to the 'port' of Salan.

Once at Aulus, the whole tour of the baths of Ariège and the Eastern Pyrénées may be made always across the mountains and without going round by the high-roads ; it is thus that from Aulus you may go in four hours to Vicdessos by the 'port' of Aulus, and in a carriage from Vicdessos to Ussat.

The valley of Ussat leads to Ax, and omnibuses constantly run between the two watering-places.

The Spanish route will conduct you from Ax to Vernet. In passing you will visit the small republic founded by Charlemagne, and then proceed to Puycerda, if you wish to visit a Spanish town ; from Vernet you may either visit the valley of

Arles, the baths of Amélie, or cross Canigou, or follow the high-road of Perpignan. I intended from Amélie to reach Vernet, by crossing Canigou, but this mountain was then, in the month of May, still so encumbered with snow, that the passes, as they said, were impracticable ; and the mineral waters of that part of the Pyrénées being not yet visited by curious travellers, especially the intrepid walkers only to be found among Parisian bathers, they were as yet but indifferently provided with enterprising guides, such as those of the Upper Pyrénées. I have no doubt that a Luchon or Bagnères guide, regardless of the snow on Mount Canigou, would have safely conducted me to the other side and to Vernet. You may finish the tour by the Eastern Pyrénées, returning through Perpignan, and I advise you to push on to Collioures and Port-Vendres ; one ought not, in fact, to go so near the sea without having a look at it.

This was the way I acted, and after having cast a final glance, as the sun was going down, on that beautiful sea I should probably not look upon again for some time, I returned to Perpignan, visiting on my way the ancient monastery of Elise.

Travellers less independent in their movements than those on foot, on horseback, by diligence, or without distinction by any available means of locomotion—that is to say, travellers with post-horses, ought first to go in their carriages to Saint-Girons and Foix. After having visited Aulus they will be enabled to make the tour I have pointed out through Ax, Vernet, the baths of Arles, and meet their carriages again at Perpignan.

In all these tours amidst and pauses at the different watering-places of the Pyrénées, board, lodging, and baths will, on the average, not cost more than from four to five francs a day ; in some as yet little-frequented localities—such as Aulus, for instance—the cost will not be more than three francs a day. Vernet is rather dearer, but in the adjoining establishment of the commandants each bather may cook for himself and go to what expense he likes. The same rule obtains at the baths of Ax.

A ROVING TRIP FROM TARASCON TO SUZE.

I am tired of railway trips, of those express excursions where you no longer belong to yourself, cannot stop at will, nor see what you wish to see; where the picture you would like to seize is no sooner seen than it is gone. The railway is well enough, and, in fact, better than the best stage-coaches of yore to carry you from one point to another—say from Paris to Marseilles—yet a corner in a comfortable coupé of the messageries Laffitte and Caillard, and especially in the mail behind five good horses, and the slight incidents of the road, were not without their charms. Oh, easy days, when the conductor of the mail, as I have seen him do in days when he was not so hurried as lately, carried on his little traffic along the road, and stopped the postilion to go after some young partridges seen a little way off! The love of hurry has done away with all these enjoyments, and from improvement to improvement we have come to this pass, that now we admire being shot forward like a cannon-ball. I do not complain, and appreciate progress more than many others by turning it to account, and, distance being annihilated, no longer feel the sadness of exile when distant two hundred leagues from my family and friends.

Yet I desire to vary my pleasures, and it is monstrous always to ride in a railway carriage in the midst of noise, without liberty and an opportunity of indulging in the least stroll. Is it not time to return to the habits of our fathers—sometimes to leave the rigid line of rails, to resume slow manners, and to turn back, so to speak, to the other end of the line we have travelled over? Would there not be something piquant to resort again, if not for long journeys, at least for short trips, to the means of transport employed by our grandfathers, and even the grandmothers of the children of this country, even for going to Paris?¹ For I have known very respectable ladies who made the journey on their

¹ This idea has already been carried out in this country; stage-coaches have been re-introduced for journeys to and from London and Brighton, Tunbridge Wells, &c.—*Transl.*

ambling palfreys. But we are not now talking of going to Paris.

This notion of returning to ancient customs occurred to me when lately I saw one of my friends, who is somewhat of a character, undertake a several days' trip on horseback to a place to which the railway would have carried him in a few hours. But the country is diversified and picturesque. My friend wanted exercise and fresh air, not gusts of wind such as one is liable to in a railway carriage, of which he has a wholesome horror; and this journey à la Don Quixote gave him pleasure and did him good. Yet the horse does not realise my *beau idéal*. This noble animal is somewhat lively; it is delicate and requires care and looking after; it cannot be left to itself on rocky and difficult paths; and its rider cannot with impunity yield to diversion and reveries. His luggage is not easily stowed away on its back, and at inns it wants a good stable and proper food. The rider's position, moreover, requires him to be constantly on the watch. The working classes about here have a manner of riding on asses which I envy every time I see it. They are seated on the animal as in an easy chair, their legs hanging down on both sides of the beast's neck. In this way the legs are not widely separated; the body rests comfortably on a soft cushion, and is flanked on either side with panniers, well balanced, which maintain the rider in his position, and contain his provisions, tools, and especially his gourd and hay for his ass. Mowers generally thus go to their work. They form a kind of corporation, inhabiting the suburbs of the town, and are often met with at the hay-making season in groups of fifteen or twenty, going in the morning towards the pleasant meadows of the village of Lattes, or returning home in the evening after their day's work. It is a pleasure to see them gravely seated on their small, sure-footed animals, trotting along without fatigue, and even resting from their hard labour on this seat as comfortable as an armchair. They talk, smoke their pipes, take a drink out of their gourds, and could read the paper, if such were their fancy. How many times have I not, whilst looking at them, made in imagination picturesque trips into the moun-

tains I can see from our promenade at Peyrou—in the east into the Alps, and in the west into the Pyrénées !

Well, this is one of the dreams I wished to realise. For fifty crowns I bought one of those good small donkeys that are satisfied with the coarsest herbs ; they browse under a burning sun, and I fancy that, in the absence of herbs, they sometimes eat dust, and are none the worse for it. I had a saddle, or rather a pack-saddle, whose southern name I do not know, but which in Picardie is called a *blatière*, made for my humble steed ; two panniers of fine white osiers, with hinged lids, to preserve my luggage and provisions from dust and rain, were hooked on to the right and left of this *blatière*. The head of my ass was ornamented with a very neat rein and bridle. Into the panniers I put a change of linen and clothes, provisions, a large gourd with swelling sides, cigars, tobacco, and my pipe. To this I added paper, pencils, pens, and books ; an umbrella for sun or rain, a travelling bag, and a light cloak completed my equipment.

Among my books were included a few volumes of the charming *Causeries du Lundi*, by M. Sainte-Beuve, agreeable travelling companions and very good society in the evening. These *Causeries*, in fact, form an excellent course of literature ; the study of men and history is agreeably blended with literary criticism. M. Sainte-Beuve possesses in a high degree the love and sentiment of the good and true. He appears to advantage in his liveliest, we may say most passionate, criticisms—those, for instance, on M. de Chateaubriand. As soon as an eloquent page comes before him, his enthusiasm breaks forth without restraint ; he even has no hesitation in putting the great delineator of our days above J. J. Rousseau, whom he admires greatly as a colourist and artist in style. No one has better praised the author of the *Génie du Christianisme*, and, in spite of the attacks on proceedings he pursues with pertinacity, every man of great talent and genius would like to receive such praise, for one feels that the sentiment comes from the soul and not the mind alone. I know nothing more sound, from the standpoint of literary doctrine, of the beautiful and the good than these arti-

cles of M. Sainte-Beuve, and nothing at the same time more interesting and agreeable. The author never sacrifices true taste to the pleasure of producing an effect, and he always stops short even when speaking of certain scandalous heroes, whose adventures would be a fortune to a writer who wishes to interest his readers and excite their curiosity. He always stops at actions which would compromise the honour or dignity of man, in either morality or humanity ; and he does this without pedantry, for he is indulgent towards human weakness, and would not cast a stone at the woman who repents. What finer words, for instance, than those concerning that Count de Bonneval—so elegant, witty, brave and brilliant in war—who ended by betraying his country and turning Mahometan? ‘The example of Bonneval seems to prove that life needs some halting point, some principle—I will even say some prejudice—discipline, subordination, religion, country ; nothing is superfluous, and we must of all this at least keep something, a guarantee against ourselves. . . .’

But I come back to my excursion. Thus provided against bodily and mental wants, with a good map to direct me, I take the railway as far as Tarascon, which is my starting point.

From Tarascon I turn towards Saint-Rémy, situate at the opening of a little valley of the Alpines, and whence one enjoys a splendid view towards Avignon, the course of the Rhône, and the chain of Lébron. I stop at Saint-Rémy, not merely to contemplate this view, which combines a southern impress with the vegetable splendour and fertility of the richest valleys, but to admire two ancient monuments in a state of perfect preservation—a mausoleum, square at the base, with four basso-relievos representing hunting and battle scenes, circular at the top and surmounted by the statue of Death. This mausoleum, probably dating from the first century of our era, bears the following inscription: ‘Sextus, Lucius, Marcus, of the race of Julius, have erected this monument to their parents.’ Its appearance is very elegant. The second monument, of less antiquity by a whole century, is a triumphal arch, of which only the lower portion remains. The sculptures represent chained cap-

tives ; on the architrave are a garland of flowers and fruits, very well executed ; the vaulting of the arch is coffered.

What is the meaning of those two monuments ? Evidently they formed parts of a large city, the ancient Glanum, on whose ruins there rises to-day the fine establishment of Saint-Paul, founded by Dr. Mercurin, and devoted to the treatment of the insane. A truce for a moment to our pleasing ideas to enter this interesting asylum, which by-the-bye offers nothing sad to the eye. Did we not know that these well-kept rooms are inhabited by poor beings deprived of reason, did we not meet in the grounds of the park wild-looking faces, we might fancy ourselves in pleasure-gardens situated in the most wholesome locality at the foot of the Alpines, whence opens the splendid valley extending to the Rhône.

Saint-Rémy being only sixteen kilomètres (about nine English miles) from Tarascon, my ass, well refreshed, was ready for a longer stage, which I took advantage of to visit the ruins of the town of Baux, curious on account of their site and history more than on account of what remains of the ancient castle. There is a good road to them across the chain of the Alpines.

This first trip inspired me with good hopes of the success of my undertaking ; this mode of travelling seemed very agreeable to me, for I enjoyed the freedom of a pedestrian tour, alighting when I liked, and taking it easy on my seat when I felt so inclined. Whilst admiring the landscape I enjoyed also the provisions stored in my right-hand pannier, and occasionally smoked a cigar whilst being rocked by the gentle though jolting pace of my beast. I had bought the day's papers at the railway station, and read them as comfortably as in my study, beside the pleasure of being in the open air and breathing freely. When a pretty flower attracted my sight I leaped from my ass without having to trouble myself about him or even stopping him. The railway whistle no longer deafened my ears. In the midst of the silent fields I heard nothing but the hum of the insects concealed in the grass ; the smell of coal had given way to the aroma of odoriferous plants, that perfumed the atmosphere. I had no troublesome neighbour, and no longer experienced the

disagreeable sensation of forming part of a mechanism, being at the mercy of a gearing, deprived of freewill and carried away by a superior and fatal power ; my own will—nay, whim—was my sole law. On the most lonely paths I was not alone ; the humble animal I bestrode was for me a real travelling companion. We understood each other ; I guessed his inclinations, and he replied to my words by a very significant shake of his ears. He animated the solitude. Are these not true enjoyments, old indeed, but from which we have been severed so long that they become new ? As to the slow progress, this is a matter of imagination ; all we need do on starting is to assume the mental disposition of a man who is not in a hurry.

I shall not describe in detail the road I followed in re-ascending the valley of the Durance as far as Gap, nor that which from Gap conducted me to Grenoble, a road interesting, nevertheless, by its sites and famous for its historical recollections. It was the one taken by the exile of Elba when, after having once more, in the Gulf of Juan, stepped on the soil of his empire, he followed the guidance of his eagle, which flew from steeple to steeple to the Tuileries. But we have so many places and things to see that we must hasten on.

Near Visille let us, in passing, cast a glance on the Castle of Lesdiguières, belonging to the Perrier family.

Gavet merits a momentary delay, were it only to recall a geological catastrophe, which suddenly changed the aspect and even the conditions under which that district existed. In the twelfth century the mount Voudine, which bars the passage of the Romanche, slipped from its base ; the whole valley of Bourg-d'Oisans was converted into a lake to a depth of ten mètres, forming the lake of Saint-Laurent. From labourers the inhabitants of the country became fishermen. But in 1219 the dike was carried away, and the whole valley ravaged as far as Grenoble ; the villages disappeared. Around Visille you may still behold boulders transported thither by the eruption of the waters of the lake. Bourg-d'Oisans is a small town situate in a level valley, fertile and well cultivated. At a great depth below the Romanche you may see the defile. The road above Freney,

to the right, is the steep side of the glacier of Mont-de-Lans, the most considerable in Dauphiné. The Romanche casts itself into a deep cleft, where it forms cascades, the chief of which is known by the name of the Maiden's Leap ; further on there is another fine cascade on the left of the road. Villard-d'Arène is a locality famous among geologists on account of the superposition of the sedimentary rocks on granite. At some points there has been an overthrow—what in the order of strata ought to be below is above. This granite overlies calcareous lias for an extent of two kilomètres from the glacier of Grave to Villard-d'Arène, and the two rocks have undergone curious modifications at their point of contact. M. Élie de Beaumont was the first to point out this locality to the attention of geologists.

Proceeding onward I arrive at the meadows of Lautaret, richer in Alpine plants than any other locality. These here attain to extraordinary dimensions, the soil, composed of schist or decomposed slate, being very favourable to them. This place, indeed, is the very garden of the Alpine flora. From the hospitium of Lautaret, situate at the top of the mountain pass, 2,240 mètres above the sea, one enjoys a beautiful view over the group of the Pebrona and the Aiguille du Midi.

Moraines, as is known, are rocks carried far from their original site by the ancient glaciers, which were of gigantic dimensions and extended to great distances. There are moraines truly colossal, and here we have a striking specimen. The village of Lauzet is altogether built on an ancient moraine very distinctly traceable.

Always following the banks of the Guisane, we arrive at the Monestier de Briançon, situate 430 mètres above the sea, which does not prevent its being surrounded with barley-fields and orchards. Finally we perceive Briançon, commanded by its numerous forts, one of which is 2,600 mètres above the level of the sea, on Mount Infernet.

We shall not make a long stay at Briançon, which to us is only a stage, but resume our route across Mount Genève to reach Suze. The new road forms numerous traps ; but as I

am, so to speak, on foot—the foot of an ass occupies less space than that of a man, and passes wherever the latter can pass—I prefer the old road, which ascends directly through beautiful pine-woods. The botanist, on leaving the town, sees with surprise the *lavandula spica*, which rises to this height, in following the banks of the Durance. You soon reach the summit of the pass, less elevated than the Lautaret, for it is only 2,000 mètres above the sea. It forms an undulating plateau, covered with meadows, sometimes swampy, and dotted with barns. Quite at the top there is an obelisk, informing the traveller that the road was finished in 1807. There may be seen *in situ* the characteristic rock of the Durance, the *variolite*, which is met with as far as its confluence with the Rhône, and in Crau, that singular country traversed by the railway from Arles to Marseilles, and so well described by M. Ch. Martins.¹

You descend along a zigzag road to Césanne, the first Piedmontese village. You reach Oulx and Salabertrand, then Fort Exiles, which, arising in the middle of the valley, completely commanded and barred the road from France to Italy; but this fort is become useless since the frontier of France is on the pass of Mont Cénis. Before entering Suze we stop and rest in the shade of a delicious wood of chestnut and walnut-trees.

Since we are here in the presence of the formidable undertaking of piercing Mont Cénis, let us not quit it without visiting the remarkable works which assail the mountain on both sides, French and Italian, and seek to meet under this enormous barrier, separating the two countries.² Man cannot proceed quickly in such an enterprise; he can only advance by inches through these hard rocks; he must pierce and blast. And the work would be easy could it be carried on under the open sky, in the open air. But when it becomes necessary to work in a subterranean cave the difficulties increase as the workers

¹ Martins, *Du Spitzberg au Sahara*. Paris, 1866, p. 427.

² Though much of the above description may now seem a little out of date, yet it may not be without interest to recall what was thought of the enterprise and the means of accomplishing it, now that the tunnel is a *fait accompli*. Hence these details are retained in our translation.—*Translator*.

advance, who have not only to contend with the hardness of the rock, but with want* of air ; for there is no possibility of ventilating by currents, as is done in tunnels of average length, and passing through hills of average height, by means of wells placed at suitable distances. In this case the wells, in consequence of the elevation of the chain, would entail as much labour as the tunnel itself. It has been calculated that each of them would require not less than ten years to arrive from the top of the mountain at the subterranean passage, wherefore it was useless to think of it.

How, then, were the workmen to be enabled to breathe at the bottom of this immense tunnel, which they are slowly cutting through (it will be no less than fifteen kilomètres long), especially after the mining explosions, which fill the gallery with smoke and consume the respirable air, whose loss must be supplied from without? But how is air to be forced into such a distance, and made to circulate in this long tunnel? The solution of this problem appears to us one of the marvels of the human mind, foreshadowing, perhaps, the solution of other questions far more important.

The necessary power could not be derived from steam-engines, too costly to erect and work in such a locality, and for an enterprise of such duration, and so costly in itself ; it was necessary to have recourse to natural and economic means. The engineers found in the fall of water, so abundant in these high mountains, the agent they needed strongly to compress the air and to send it from distant points to the very end of the tunnel, through tubes so well adjusted that not a bubble was lost on the way, in spite of the great pressure to which this air was subjected. This was a master-piece of skill.

Thus the workmen were provided with as much and as good respirable air as if they had been working in open daylight, and able to ventilate the tunnel after every explosion. The same power—that is to say, compressed air—was employed as the mechanical agent for piercing the rock, and thence the question has been raised whether the use of this power might not be generalised by applying it to workshops and various industries.

It would be sufficient to have near an industrial centre a water-course of a certain power to be employed in compressing the air, which might be distributed as easily as water or gas ; it has been calculated that a workman might have in his shop a cock supplying compressed air of one horse power at the expense of fifteen francs a month. Is not this a partial solution of the grand problem that will arise at a not very distant period, since in some countries coal will be exhausted in two or three centuries ? It seems less easy to provide for the feeding of locomotives and steamers, which perform so great a part in the conditions and wants of civilisation ; but human genius will find the means.

By means of the marvellous apparatus employed for piercing the Mont Cénis, this great enterprise, which at first it was thought would require at least five-and-twenty years for its accomplishment, may probably be achieved in ten. The machine for boring the holes in the rock advances as many meters as the hand of man alone advanced inches ; so that, setting aside grave accidents that cannot be foreseen, or secrets that may be enclosed in the mountain whose bowels are being penetrated, the engineers hope to meet in the centre in seven or eight years, and this time may even be shortened, thanks to the improvements almost daily introduced in tools and modes of working ; the period has already been reduced by two-thirds, and fresh experience may diminish it still more.¹

The boring-machine is most ingenious. It is provided with a great number of drills, which all act at once ; it advances or recedes at will with the greatest facility ; it attacks the rock on all points and in all directions. And when it has accomplished its work it is moved away, the holes are charged, the slow matches arranged, and fire is set to them ; the workmen retire, thick oaken gates, placed at regular distances, are closed, and, in spite of all these precautions, one has never seen at the moment of the explosion a single cap remain on the head of the men placed beyond the obstacles, nor a single light resist the concussion of the air that then takes place. . . .

¹ It was thus diminished, for the tunnel was opened in 1871.—*Translator.*

PROMENADE TO MOUNT VENTOUX.¹

What I here call a promenade might really be called an ascent, for Mount Ventoux offers one of the steepest ascents that can be attempted, though it be scarcely 2,000 mètres high. From the point which may be reached on mules—that is to say, from the Meadow—there remains a cone which must be climbed vertically ; the footpath disappears on a soil which crumbles under your feet. This painful ascent lasts more than an hour, and it is a mystery whence come those rolling stones, since at the top there are not even rocks to which these débris may be attributed ; they seem to fall from the sky or to have been cast forth by a volcano, of which, however, no trace remains.

Mount Ventoux is known to be an offshoot of the Alps, jutting out into the plain like a promontory from east to west, between Avignon and Orange. These isolated peaks have a particular interest for geologists and botanists ; their constitution, in fact, is singular, and flora varied, their isolation leaving them to their own temperature, and the vegetation varying according to their height, so that plants of the most opposite countries appear successively as you ascend, in regularly superposed zones. ‘Nowhere,’ says Professor Ch. Martins,² ‘do we encounter a mountain geographically more favourably situated, more detached from the principal group, and better placed with regard to the cardinal points, to see the influence of position translated by its vegetation.’ The Ventoux is therefore dear to naturalists, and it was on this account that I long entertained the idea of making an excursion to it.

All travellers descending from Lyons to Marseilles have

¹ June 1868.

² Ch. Martins, *Du Spitzberg au Sahara*. Paris, 1866.

noticed to the left, between Orange and Avignon, this high mountain with a rounded top, advancing perpendicularly in the direction of the railway, and whose summit is always white—in winter on account of the snow that covers it, and in summer because of its calcareous nature, which in the southern sun glitters like a white surface. It is Mount Ventoux (*Mons Ventosus*), the loftiest peak of that troubled region which extends to the Alps. Its aspect is all the more striking because it is mostly without vegetation, and this contrasts with the lively colours of the plain. The upper portion of the mountain, as I have just intimated, consists of stony soil, and resembles an immense embankment, whose materials were brought from afar, and among these stones the botanist discovers the pretty flowers, which are only met with far from there, and in other climes. The lower half or its base presents, especially on the northern side, large surfaces clothed with fine turf, clumps of trees, and, among others, a small and verdant forest of beech-trees, to cross which is a relief after having for three hours ascended the naked side of the mountain, under a sun which becomes burning soon after its rising. One of these carpets of verdure is called the ‘Meadow;’ flocks of sheep graze there during the summer, and quench their thirst at a small spring, by the side of which we also shall rest in a little while.

We had procured correct information to reach the Ventoux, which is a somewhat important matter, for of the two slopes of the mountain the southern is arid and monotonous, presenting nothing but a long inclined plane, without variation of surface; the northern slope is more abrupt, very diversified, and produces in its narrow valleys various shrubs and plants. A painter well known to amateurs, a true artist—M. Laurens—had indicated to us this side as the one by which we should ascend the mountain.

Between Avignon and Orange, then, at the station of Sorgue, we take the branch line of Carpentras. We shall come back to this old town, but before all things must achieve the ascent, for fear of staying too long in this beautiful ancient county of *Viennensis*.

From Carpentras a carriage brought us in two hours to Malaucène, situate in a rich and beautiful valley at the foot of Mount Ventoux.

I say us, for I had a travelling companion, a young Parisian, who was making his début in mountain-climbing. We formed a contrast that deserves description.

I, an old traveller, as regards travelling costume, think only of what I wear on my feet ; a good pair of lace-up boots, with large and thick soles, and gaiters, these are the essential portions of my accoutrement ; a flannel shirt, blouse, and hat of any kind—the rest matters not.

But such was not the case with my young neophyte ; his dress was faultless. Boots and gaiters of patent leather, well-fitting trousers, a summer jacket, a red belt, a necktie of green satin, a round hat with a veil, everything complete. His satisfaction would have been perfect, had I not disturbed the harmony of it, and shocked all his ideas with my grey ‘chimney-pot ;’ he could not understand such a mistake. To make an ascent with a high hat, such as is still seen on the boulevards ! His bewilderment was comical ; but youth is so agreeable, when intelligent and not blasé ; and how sincere in the expression of its sentiments ! This was the case of my young friend, and so his arguments and criticisms rendered our journey more profitable and delightful. His legs were strong and his spirits good ; there was nothing of the exquisite under this somewhat *recherché* costume.

Our preparations were soon made ; two guides and two mules were to be at our door at half-past three next morning. After a good supper, and a good night of five hours, we were in the saddle and on the road at four o’clock, preceded by our guides, who carried our provisions ; we ourselves, for portmanteaus, had two trusses of hay for our animals. After having swallowed a basin of coffee without milk, the best viaticum for these kinds of enterprises, we set out for the mountain. We rode up-hill for three hours and a half, and this first stage brought us to the Meadow, to the side of the small spring. There we alighted from our mules.

We began to ascend on foot the enormous cone composed of loose stones forming the top of Mount Ventoux.

At my age it is not the legs that give way, but breath, and climbing up a vertical hill for more than an hour, on a soil which rolls away from under your feet, is actual suffering. On the highest mountains I have visited in the Alps and Pyrénées, except on crossing the snow or glaciers, there is always a path, be it ever so narrow and indistinct, where the foot may confidently be put down. On Mount Canigou, for instance, which I ascended in June 1867,¹ and which is much more lofty than the Ventoux (2,800 mètres against 1,911), there is a road up to the foot of what is called the 'Chimney'—an actual wall as high as a house, which must be scaled to reach the summit. Here there is nothing of the kind ; it is a stony, vertical ascent for more than an hour, very toilsome indeed ; but the top is reached at last, and you are refreshed by the pleasant wind which fans your face, and against which you had better protect yourself in the state of perspiration in which you are.

From this height, which commands everything fifty leagues around, you perceive to the east the mountains of Savoy, covered with snow, Mont Blanc even when the horizon is clear, and to the west the magnificent valley of the Rhône, with its beautiful river rolling its flood from north to south, through meadows and richly cultivated grounds. At your feet are Venasque and Saint-Didier, which we shall visit in a few hours ; whilst Carpentras and Avignon are seen in the hazy distance.

The descent is no less difficult for the legs than the ascent, but as to the chest the case is very different.

With what pleasure we returned to the delicious source with the wine nicely cooled, and with what appetite we devoured the breakfast prepared on the grass by the guide, who had remained behind with the mules and provisions !

As to our harvest of plants, it was not large, the season not being sufficiently advanced ; the flora of Ventoux is in its splendour in the month of July only. Thanks to the elevation,

¹ See *ante*.

isolation, and direction of the slopes of the mountain, one of which is due south and the other north, the tourist passes from the tropical to the temperate regions, and finally reaches the Alpine zone, where the cold is very piercing. 'The annual mean of the temperature at the top of Ventoux,' says Professor Ch. Martins, 'does not exceed two degrees, which, as will be seen, is a very low average. We must approach the polar circle to find a latitude with the same average. . . . We therefore have in France an isolated mountain rising abruptly from a plain, whose mean temperature is that of the towns of Sienna, Brescia, or Venice, and whose summit presents the climate of northern Sweden at the boundary of Lapland. Thus to ascend Ventoux is, as regards climate, passing through nineteen degrees of latitude—that is to say, from degree forty-four to degree sixty-three. In other words, it is advancing five hundred leagues towards the north.'

It will hence be easy to judge of the variety of vegetation in this limited space. 'All the climes of Europe,' continues M. Martins, 'from that of Provence to that of Lapland, are graduated on the sides of the Ventoux; a different flora necessarily corresponds with each of these degrees, which also is analogous with the flora of the corresponding climates in the plains of Europe.' Here, therefore, we may study the influence of altitude on vegetation.

Mount Ventoux thus offers a succession of vegetable regions, well defined and characterised by the existence of certain plants wanting in the others. These regions are to the number of six on the southern slope, and of five on the western. In the absence of a barometer the flora will thus tell us what region we approach. To the south, all the plants of the plain belong to the lowest region; it is distinctly characterised by two trees—the Aley pine and olive. The first does not exceed 430 mètres above the sea; the olive goes higher, but it is no longer cultivated beyond 500 mètres. Below these trees one meets with all the southern species that characterise the vegetation of Provence—the Hermes oak, rosemary, Spanish broom, &c. This is succeeded by a narrow zone, characterised by the holm-

oak, so favourable to the production of truffles. In the midst of the coppices one meets with the European tooth-wort juniper, the large euphorbium, &c. A region bare of arborescent plants immediately follows this latter; box, thyme, lavender, and swallow-wort prevail in it. At the height of 1,200 to 1,600 mètres we encounter beeches, buckthorn, gooseberry shrubs, gilliflowers, *cacalia*, and the sorrel of the Alps. Higher up, where the cold is very piercing, is the mountain pine, and then appear germander and turfy saxifrage, found on the highest point of the Alps. At the height of 1,900 mètres every tree disappears, but a crowd of smaller plants open their corollæ in the month of July above the stones and rocks—the orange-flowered poppy, the violet of Mont Cénis, the milk-vetch with blue flowers, and quite at the top the meadow-grass of the Alps, the euphorbium of Gérard, and the common nettle. M. Martins has noticed that it grows wherever man constructs a building, wherefore it is found sheltering itself against the walls of the chapel erected on the summit of Mount Ventoux since Petrarch made the ascent.

On the southern side M. Ch. Martins encountered again, like an old friend, the saxifrage with compound fronds, which he had gathered on the summit of Reculet, the loftiest summit of the Jura, and on all the Alpine tops that attain to or exceed the limit of perpetual snow; and when he for the first time put his foot on the frozen shores of Spitzbergen, the saxifrage with compound fronds was again the first plant that struck his eye. On Ventoux we also meet with the blue bells of the bell-flower of Allioni, and other small and ill-shaped flowers.

The pine, which is not seen on the southern side, grows on the northern declivities; there is a region of beeches on the north as well as on the south of Mount Ventoux, but lower down; in descending one encounters box, thyme, and lavender. The vegetable zone immediately below this is characterised by a tree which, according to M. Ch. Martins, would vainly be sought for on the southern slope—viz. the walnut-tree—but, on the other hand, the region of olive-trees is wanting on the north. We see how full of interest this mountain, apparently bare, is in reality,

though the traveller, rushing by in a railway train, regards it with indifference, and without suspecting that it represents, on a small scale, the order of vegetation from the plains of Provence to the extremities of the Scandinavian peninsula.

After a descent of three hours from the spring we re-entered Malaucène, where we rejoined our carriage, which was first to take us back to Carpentras, and thence to Saint-Didier, where we submitted to an excellent douche of cold water, which instantly dissipated every trace of fatigue ; for Saint-Didier is an hydropathic establishment, founded by Dr. Masson in an old castle.

This establishment is an admirable central point for tourists who come to explore this beautiful and interesting region of the south ; once installed in this charming domain, under the shade of magnificent trees, they may make an excursion to the fountain of Vaucluse, which, although somewhat out of fashion, is one of the most lovely and attractive places to visit, and which a very good book by M. Mézières on Petrarch¹ may again bring into fashion. We ourselves visited with great delight the curious spring and splendid rocks sung by Laura's lover, whom, thanks to M. Mézières, I have learnt to appreciate as one of Italy's greatest citizens.

M. Mézières well describes the course of the Sorgue, and the remarkable colour of its water.

'As soon as it is in repose,' he says, 'as soon as it no longer encounters obstacles, the Sorgue spreads out between its flowery banks a sheet of limpid water, of a remarkable colour, whose soft and transparent tints I have never met with again, either in the Alps or Pyrénées, either in Italy, Spain, or the East. . . . The Sorgue alone, of a delicate green on the surface and down to the bottom of its bed, resembles a green plant that has been liquefied.'

A more poetical or correct comparison could scarcely be employed. This tint, however, is not unique ; it is met with in

¹ Mézières, *Pétrarque: Étude d'après de nouveaux Documents*. Paris, 1867. 8vo.

most of the springs of Provence and Languedoc, which flow from a calcareous soil, like the fountain of Vaucluse. The Lez of Montpellier especially presents a tint absolutely the same.

At the recommendation of M. Laurens we did not neglect the small town of Venasque, with its ancient and well-preserved baptistery. This small town, perched on a rock, with its bishopric and strong castle, was of importance at the time of the Popes. The road leading to it is charming, and one regrets not pushing on through this warm and smiling nature, coloured with such beautiful tints by a cloudless sky.

After the wearying heat of a burning day, what a pleasure to roam in a beautiful night and by a bright moon through this charming landscape, where not the least trace of dampness is felt! What comfort for the body, and at the same time what enjoyment for the soul! It is not sufficiently known how much such a life, led for a few weeks under such excellent hygienic conditions, contributes to subdue suffering, by destroying sickly habits contracted in towns and fashionable society. As for me, I know of no better medicine or more rejuvenating regimen.

The hydropathic establishment of Saint-Didier has not been founded long enough to be fully developed. Douche and turpentine vapour baths alone are as yet in operation, and they ought, in fact, to be doubled to suffice for the constantly increasing number of visitors. The swimming baths, so valuable and efficacious in certain cases, are neither large enough nor fed by sufficiently strong currents of water. What is wanting at Saint-Didier is not water—the supply, I believe, is abundant enough—but the sight of water. It is not seen enough, and invalids who come to undergo the water-cure like everywhere to behold the healing agent. It is true that the water, arriving at Saint-Didier from the surrounding mountains, with a pressure strong enough to rise without motive power to the level of the first floor, is not allowed to spread in basins, to raise it afterwards to the height whence it is to fall for douches. The natural slope, which dispenses with pumps and machinery, is a great advantage, but the reservoirs at least ought to be visible, larger, and especially better protected against the action of the sun, so

as to keep the water at the lowest temperature. Such as it is, and under the direction of a clever physician, the establishment of Saint-Didier already renders great services, and numerous patients have been restored to health. But Dr. Masson, who is a man of intelligence and desirous of doing good, proposes to visit the model establishment of Divonne, near Geneva. We strongly advise him to do so. He cannot do better to see what marvellous results may be produced by cold water applied in a thousand ways—with the most complete apparatus, the most experienced hands, and consummate experience on the part of physicians.

We quit the pleasant shades of Saint-Didier with regret. In passing again through Carpentras I wished once more to behold this town and hear the pleasing voices of its inhabitants, who contrast so strongly with Provençal roughness. Is this to be ascribed to the influence of Italian blood? Carpentras, like some other towns of this southern country, always remembers that it once was the domain and residence of the Popes. It preserves in its manners an impress of the character and, as it were, a transfusion of the blood of Italy, as well as a taste for monuments and objects of art. You will hear in the country the expression ‘When we were Italians.’

I visited the ancient episcopal palace—now the courts of law—with its frescoes of Mignard, its magnificent hospital, its library and museum, containing a collection of portraits of cardinals with haughty looks, and also that of a man who possesses genius and is become famous. M. Raspail is a native of Carpentras.

I finished my tour by way of Avignon, whose ancient palace, or rather Papal citadel, and picturesque enclosure of crenelated walls one cannot behold without desiring to enter it. A visit to the ancient cathedral, the museum full of precious objects, and the promenade of the *Rocher*, where one gratefully salutes the statue of the man who introduced the madder root, whose cultivation to some extent forms the wealth of the country—here are objects sufficient to occupy a long day.

A TOUR IN PROVENCE.

As we grow more familiar with the East, become better acquainted with the aspect, constitution, and products of our African possessions, we take a livelier interest in the shores of the Mediterranean. It is, in fact, already the East by its sky, climate, physiognomy, horizon, soil, and productions.

There is a connection between geological constitution—animals, plants, and, to some extent, man—so that to our modern naturalists the basin of the Mediterranean in its whole outline forms a whole, where nothing is found but shades and varieties. This belt of territory, then, which stretches from the Cévennes and Alps to the sea, ascends as far as Valence crossing the valley of the Rhône by which it communicates with the centre of France, is therefore particularly interesting for us, since it presents to us the features of distant countries, altogether distinct from the remainder of our country.

The simple tourist cannot help being struck with the character of this region, the luminous atmosphere which suddenly opens upon him in the environs of Valence, when he has scarcely left the fogs of Lyons, and the southern impress of the horizon standing out so clearly against the blue sky. It is undoubtedly this grand character, this universal transparent and tinted tone, which is so much admired by our poets and artists, the singers and painters of the sites of Provence; since for the humble pedestrian, the lover of cool shades, who delights in meditating on paths pleasant to the feet, in feeling himself lulled to sleep by the murmuring rivulet, or charmed by the aspect of a cottage surrounded with verdure, the southern landscape has few attractions. People here do not know what is meant by a cottage, with the charm attached to the word in Normandy, and the villages have nothing of the rustic about them; their houses, closely ranged together, without any open spaces around them,

without gardens, and frequently without the shade of a single tree, presenting to the eye only stone walls bronzed by the sun, and the warm tints so dear to the painter. Beautiful and poetic excursions may be made in Provence, but there are no walks such as we understand them in the environs of Paris.

I have just undertaken one of these excursions.

I had long desired to visit the ruins of Grignan. I was anxious to see the castle, inhabited by the daughter of the illustrious marchioness, and what remained of it, to rove about the country so well described in the letters which are become one of the monuments of our history and language. If there be a particular charm in following our friends in the places they inhabit, and being witnesses of their joys and sorrows, this same sentiment, mixed with reverence, arises in us when the men and women whom the country honours, and who, in a charming style, have made us sharers of their enjoyments and sufferings, are in question. Is Madame de Sévigné not in the first rank in this respect? Is she not a charming friend, with whom we pass pleasant hours in interesting converse?

Hence I had on a former occasion visited with religious curiosity her beloved retreat of the Rocks (*les Rochers*), and again wandered through the localities where she had so often been my companion; entered with profound emotion her well-preserved room, where are still to be seen her furniture, her armchair, and the table on which she wrote. The remembrance of Madame de Sévigné takes hold of you as soon as you arrive at Vitre, and its surroundings revive as you approach her dwelling by the same road, which is now scarcely better than it was in her time.

Grignan is not calculated to produce the same impression as the pilgrimage to the Rocks. There are no longer the same genial thoughts; they are somewhat affected by the roughness of the country and the severity of the climate, which filled the mother with so many apprehensions for a health very dear to her.

I went to Grignan, not expecting to find much left of the ancient dwelling where the Lieutenant-General of Provence

displayed his ruinous splendour ; I represented to myself the famous terrace as forming part of the beautiful gardens in the style of Louis XIV., a sort of small Versailles. I had been informed of awkward, though pretentious, restorations, which disenchanted me beforehand ; but there is, after all, something which neither revolutions nor bad taste can disgrace—that is nature—and the local aspects promised me sufficient compensation for any disappointment.

To go to Grignan is an enterprise. It is not on the direct road ; you must stop in the midst of your railway journey, turn aside, and plunge into those first buttresses of the Alps called ‘Alpines.’ Now, at the present day, one scarcely interrupts a direct and rapid journey to visit a ruin, but hastens to arrive at the end of the line, and only alters one’s course for great and marvellous sights. ‘If you have neither Mont Blanc nor the sea to show me,’ said a Parisian friend of mine, who is a man of wit and merit, ‘I shall not go out of my way.’ For this the ruins of Grignan are but seldom visited, except by foreigners or amateurs like myself, who make the trip on purpose.

The traveller must stop at the station of Pierrelatte, half-way between Lyons and Marseilles ; there he will find a carriage starting at seven in the morning for Grignan. But, wishing to see the country at my ease, I did not take advantage of this conveyance, but set out on foot to get over the twenty kilomètres that remained of the journey.

The environs of Pierrelatte still partake of the richness of vegetation of the borders of the Rhône ; but as we go farther from this great river, the country becomes dry and arid, the hills grow bare and show nothing but the chalky rock, with some clayey veins red like blood.

The valley of Berre—one follows almost the whole extent of the route—is remarkable neither for picturesqueness nor beauty of landscape ; its horizons have neither vigorous nor poetical character, presenting only monotonous lines ; in fact, this is not an attractive portion of Provence.

The most curious sights are the old dismantled castles, that occupy all the strategic positions of the country. They are

found with their large square keeps on most of the summits commanding the approaches into the valleys; the villages are grouped around the castles that once protected them. The gaping walls of these fortresses have fine tints and produce pleasing effects. The existence of the lords and barons that in the Middle Ages occupied these castles, so near to one another, and probably always at war with one another, must have been a very active one.

First, on the right on a hill, may be seen the castle of Lagarde-Adhémar, which seems very imposing with its walls flanked with turrets, and which I would fain have visited, had time permitted. Then comes a succession of castles of the same description, more or less distant from the road to Grignan. There are at least half a dozen, but I do not know their names.

The olive quickly disappears, the vine becomes more and more stunted, the wheat does not come up to my knees, the mulberry-tree, with its dark green and shining foliage, alone seems to thrive. The country was animated by all the *Mircilles* which, hanging from the boughs of the trees, formed the harvest (*cueille*) for the silkworms. I may observe that none of these pictures possessed the charms of those of the poet Mistral. Splendid flowering heather here and there bordered the road, and perfumed the air with its flavour of honey. I do not know whether it existed at the time of Madame de Grignan, and whether Madame de Sévigné had an opportunity of admiring them when she came to see her daughter. Old fig-trees are still pointed out, which, they say, sheltered her; but this is certain, the road was then not so easy as now. Here and there we come across fragments of the old road, skilfully improved by our engineers. It cannot have been convenient for the coaches of the Lieutenant-General, and the handsome marchioness must have passed over it more than once in a chair.

Finally, after having climbed a last very gentle slope, the ruins of the castle of Grignan suddenly burst upon you. I may observe that they have a beautiful effect and proud appearance. They rise on the plateau of an isolated hillock, in the midst of a vast, undulating plain, terminating on three sides in arid hills,

and to the east in the Alpines. A few stunted clumps of shrubs here and there form all the verdure and shade of the landscape; but it seems there are some meadows in certain recesses of the valleys.

I saw at once that I should be obliged to renounce visiting a castle situate in the middle of a miniature garden in the style of Louis XIV. Like its neighbours, the castle of Grignan is a fortress, with all its stern dependencies, and without land for fine plantations. A continuous enclosure of high walls, flanked with towers, everywhere surrounds the seigneurial dwelling, which you entered by a fortified gate, armed with its drawbridges, portcullis, and battlements. In the centre of a space as large as the principal basin of the Tuileries rose the castle, whose present ruins still enable us to judge of the different styles of architecture. We clearly see that it consisted of heterogeneous parts, constructed at different epochs, from the Middle Ages and Crusades to the time of Louis XIII. and Louis XIV. The interior had vast proportions, numerous suites of rooms, and we may still measure the dimensions of a large hall, having an immense chimney you may enter standing upright, and which is surmounted by the coat of arms of the Grignan family. The very irregular façades had several entrance-doors, with handsome stairs, but without any other open spaces except little gardens, planted with box and evergreens.

The beautiful terrace above the church, and forming its vault, exists in all its integrity; and what has also remained unchanged is the tempestuous wind which often rendered it impracticable, and sometimes even carried off a portion of the balustrade or wall.

The view from this terrace is fine enough, on account of its extent, but without imposing masses or deep backgrounds. The church the terrace covers is built against the hillock, so that its top is on a level with the plateau on which the castle is built, so that the vault is on a level with the little gardens, which enabled the builders to erect this vast terrace, the most beautiful dependency of the castle. As at the time of the Grignans, the collegiate church is the church of the town.

You enter it through a beautiful porch between two square towers serving as steeples. Its proportions are noble, and the choir, before the barbarous violation of 1793, contained the remains of Madame de Sévigné. A private staircase led from the castle to the church-door, but the inmates could attend service in a gallery placed close to the vault, and which was directly connected with the castle.

Madame de Sévigné's favourite promenade, Rochecourbière, is at a quarter of a league from the hillock ; it is a rock forming a bend, whence its name (*courbe*=bend), and overhanging so as to form a cool grotto, the more so since limpid water drops from the vaulted ceiling, and the rocks are clothed with shrubs.

The town of Grignan is placed at the foot of the castle. There are some very beautiful ancient houses, in which we may suppose the marchioness to have paid friendly visits ; and I could only speak in praise of this noble city, had its inhabitants not had the unlucky idea of erecting in the chief space a statue of Madame de Sévigné, seated in a library chair with a pen in her hand. Madame de Sévigné, the authoress, sitting aloft in a public square !

As to the ill-advised restorations of these beautiful ruins, this is a calumny. The owner, indeed, has had a portion rendered habitable to reside there, since none of the portions of the ancient castle was fit to live in. Perhaps he has been wrong in endeavouring to restore the Gothic and feudal entrance of the ancient manor-house ; but, irrespective of this attempt, we can only give him credit for the spirit of preservation which leads him to maintain the interesting vestiges of a time which had its greatness and exists no longer. But for him none of these walls would now be standing, none of the ancient halls would be approachable ; the beautiful glass windows would no longer exist, and nothing but a heap of stones would remain of the castle of Grignan, rendered famous by Madame de Sévigné, and where she died.

Grignan is not exactly the place for a dinner in Parisian fashion. They set before us dishes, not indeed bad, but strange, and which, perhaps, were unknown even to Madame de

Séigné ; for instance, the blood of fowls fried in a pan, an omelet with vine-leaves, &c. But our appetites were good, and we had a long journey before us to regain the Marseilles railway.

What an admirable means of locomotion are these railways, which in a few hours carry you from one end of a province to the other ; and how can we complain of them even if they do sometimes, in the country, look rather like a breach ? Just now we were at Montélimart, and now we are at Marseilles ; M. de Grignan would have taken four days for the journey.

I adore Marseilles ; not that I should like to live there. The town especially suits business men, rich soap dealers, and great speculators ; but for the enquiring traveller, the bird of passage, what a place—so interesting and full of life and motion ! Is there a more grand and picturesque approach than that of this city by rail, at the instant when it appears to you bathed in its sunlight and blue sea, with its belt of rocks, dotted with houses—those country-houses, so dear to the Marseillais ? Hence I seize every opportunity to revisit it, and never fail to make the round of the delicious promenade of the Prado, one of the most magnificent in the world. The Chiaja of Naples is not more beautiful, and yesterday morning the sea, by its glitter and tints of silver azure, could defy the most beautiful gulph shone upon by the sun.

It was the festival of the patroness of sailors, or rather they reinstated in her sanctuary the statue of the Virgin, removed from Notre Dame de la Garde since the rebuilding of the church. This ceremony, long ago fixed upon to take place on June 5, was to be performed with great pomp ; numerous prelates and cardinals had been invited to attend, and their presence was to add splendour to one of those immense processions the south delights in and knows how to arrange ; the railways were crowded with people coming from all the points of the province, and even from neighbouring provinces.

Fearing that I should find no room in hotels, I arranged so as not to need them. On my arrival, at four o'clock in the morning, I had myself conducted to the baths of Catalan, a

new establishment, where you find every possible application of fresh and sea-water, hot and cold, and according to the most different methods. I there refreshed myself, after having spent the night on the railway.

Then I set out for Notre Dame de la Garde, in order to see the new church before the ceremony. This church, erected on the site of the ancient chapel, on the rock which commands the town and port, is in its exterior constructed of black and white stone, and in its interior of white and red marble. It is not yet quite finished; the tower has only reached half its height; but the sanctuary of the Virgin is restored, and the church open for worship. This up-hill pilgrimage was very pleasant at six in the morning, and the crowd toiling up the mountain gave great animation to the landscape.

The approaches to the church, being not yet cleared from encumbrances, were wanting in dignity; the ornaments of painted canvass, the seats to let, the picture flags of every colour, the cries of the dealers in cocoa-nuts and medals, give to this kind of Calvary, which the procession was to follow, the appearance of a public drinking garden, whilst waiting for the solemn moment when the sight of the sacred objects and prelates blessing the crowd was to recall all these people to respectful silence.

To employ my time until the hour of the procession, I went to visit the zoological gardens, one of the most interesting institutions of modern Marseilles, the transition-place of animals that are sent to us from warm regions to be acclimatised in France. This garden, situated on the northern culminating point of the town, near the immense reservoir of water brought at enormous expense from the Durance in a canal more than twenty leagues, and across the magnificent aqueduct of Roquefavour, occupies the most charming and picturesque site. At the present vast and elegant buildings are being erected for a museum of natural history; it is already rich in animals from different climes—such as lions, elephants, giraffes, and birds of different species. There is abundance of water for aquatic animals; it falls in a cascade from the adjoin-

ing reservoir, but it is a pity that this water so often is only a kind of slime, and very disagreeable and repulsive to see all the fountains of the town give forth a muddy and dirty-grey water.

On the same area as the zoological garden is the new observatory, founded at the instance of M. Le Verrier, and in which is set up the powerful telescope of M. Foucault.

At two o'clock the procession started from the foot of the statue erected in honour of the worthy bishop, rendered illustrious more than one hundred years ago (1720) by the plague of Marseilles—M. de Belzunce. It consisted of the clergy proper, the group carrying the statue of the Virgin, surrounded by the Bishop of Marseilles, cardinals, bishops, and archbishops—five special *cortéges* in all. At the head marched the *cortége* of Saint-Vincent de Paul, with the emblems recalling the life and chief acts of the great saint, banners, the reliquary, &c. This was followed by the *cortége* of Saint-Jean de Matha, of Saint-Ferréol, and of Saint-Serenus, that of Saint-Cannat, of Saint-Victor, and Saint-Theodore, that of Sainte-Marie Madeleine, of Sainte-Martha, and Saint-Lazare, and finally the fifth *cortége*, that of Notre Dame de la Garde, or of the Good Mother.

All these *cortéges* had their lines of young girls distinguished by girdles or dresses of different colours, banners, reliquaries, and emblems ; there were moreover groups of different sorts, schools, congregations, religious orders, white, blue, and black. Everything, in fact, in this ceremony was religious, and none of the authorities or political bodies were represented.

I could not possibly say how many persons took a part in this procession ; all I know is, that it took two hours and twenty minutes to defile under my balcony on the Cannebière, opposite the *rue Saint-Ferréol*.

The greatest order was everywhere preserved, in spite of the immense crowd and the small number of police ; except the incredible chattering of this southern population, everything passed off with the utmost decorum ; photographers were indeed at work, but had it been possible to secure for repetition all the words that issued from these thousands of mouths, with their sharp

accents, there would have been enough to deafen the universe. The people who took part in the ceremony, which indeed was very fine, were no less curious to observe than the ceremony itself ; their eyes sparkled as much as the tongues of the others wagged ; one could see by the vivacity of their looks and the appearance of general satisfaction, that everyone was in his element, and well pleased thus to express his religious sentiments.

It was nearly eight o'clock when the Virgin reached her new sanctuary, where, as formerly, she will be exhibited to the adoration of sailors ; it is, in fact, their ancient Holy Virgin in silver as tall as life, with her painted face, her old crown of jewels, and the Infant Jesus, coloured after nature.

THE CAMARGUE AND THE SALTPITS OF PECCAIS.

The Camargue is a singular country situate in the delta of the Rhône, where a revolution will shortly be accomplished by the introduction of the cultivation of rice.

This region resembles the rest of France in nothing, and it would require a long journey to meet with more striking contrasts. A few leagues from Montpellier and its rich hills covered with vineyards, olive and mulberry-trees, you enter a kind of desert with no boundary but the sea, and composed of immense swampy wastes of sandy landes, of plains covered with a layer of salt as white as snow, whose crystals glitter in the sun. From distance to distance large puddles of water, in the midst of which, at daybreak, you may see black moving masses, which are simply herds of wild bulls marching slowly towards the pastures, where they exist in perfect freedom, the cracked tone of the heavy bells they wear on their necks alone indicating that they belong to some one. These bulls are destined for the battles of the arena, in imitation of those of Spain.

The horses of Camargue, famous for their strength, also left to themselves, live for three parts of the year in these landes, but in harvest time they are caught to serve as threshing ma-

chines. This is about the only service they are fit for, and it is marvellous to stand in the wake of a horse trained to this work and see them rush upon the heaps of sheaves, which they trample under their unshod feet with incredible ardour. These horses, almost all white and nearly wild, are thus taken in herds from farm to farm to thresh the corn harvested in, and they are said to be very profitable to their owners, as they cost very little indeed for keep. After harvest they return to their solitudes until the next season, like those bands of harvest labourers who come from afar to cut the wheat of central France. Both have earned something to live on, the latter for themselves, the former for their masters.

At the extremity of this desert, in the midst of moving sands, and not far from the sea, stands the town of Aigues-Mortes, one of the most curious of France, and which seems only yesterday to have left the hands of Saint-Louis. I cannot give a better idea of this strange town, closely surrounded by its embattled walls, than by relating what passed there a few years ago at the inundation caused by the bursting of the dikes of the Rhône.

In the midst of an autumnal night a cry of alarm informs the inhabitants of this sad town that the waters flow unrestrained over the plain, that they mount around and threaten to overwhelm them. With an unanimous impulse the population ran to the four gates of the town, closed and calked them very tightly, and, confident in the solidity of their walls, the impermeability of this enclosure which offered no outlet, patiently awaited the break of day, which should reveal to them the extent of the disaster. Soon, indeed, the plain presents only a vast fluid surface connected with the sea, in the midst of which the town of Aigues-Mortes floats, so to speak, like a ship at anchor. And thus for three whole months all communication with the land, except by boats, was cut off ; the water splashed against the walls of the town as it splashes against the sides of a ship, but not a drop penetrated inside ; the inhabitants walked dryshod in the streets of this town, plunged several mètres deep beneath the level of the water. This phenomenon was repeated twice in two years,

and this immense roadstead was furrowed by the craft that served to carry travellers and feed the town.

The first time they were quits for the anguish inspired by the danger of being submerged from one moment to the other, but the second inundation was followed by a frightful disaster. The retreating waves left the earth impregnated with organic remains, which, under the burning sun of that region, developed a poisonous miasma with which the air was infected. A cruel epidemic decimated the population ; men who arose well in the morning died at midday, and families found their relations they had left in perfect health on the previous evening lying dead in their beds in the morning.

On seeing so curious and dismal a town one is ready to ask why persons not born there, and not fixed therein by the impossibility of quitting it, live in such a place ?

Because close to it there is an inexhaustible source of wealth—the famous saltpits of Peccais.

Those who have not visited the salt deposits of the south can form no idea of the extent, of the immensity, of such an exploitation ; the superficies of these pans, or basins, must be reckoned by leagues. There sea-water, subjected to the ardour of the sun, evaporates and allows the salt it contains to be deposited and crystallized. But what a mass of water has to be displaced, transported, transpoured from one basin into another, until it acquires the proper degree of concentration ! Steam-engines, some on the French system, others on that of the large Cornwall pumping engines, are unceasingly occupied in drawing water from one basin to pour it into another, where it is to be still more concentrated ; and when at last crystallization is effected the mother-water is withdrawn, and the salt is seen at the bottom of the pit in a stratum of dazzling whiteness. This salt needs no further preparation or purification ; it is at once deposited in a state of almost perfect purity, fit for immediate consumption. It is taken up, accumulated in heaps, which are lightly covered with reeds, and thus left all the winter, somewhat like corn-ricks, until commerce absorbs them.

It is thus that, thanks to a happy combination of circum-

stances, such as the existence of vast plains situated in the neighbourhood of the sea, and low enough for the introduction of the salt water, and the ardour of a southern sun, we obtain at a trifling cost that precious substance which, whilst it is sold at a nominal price, yields large sums to the national exchequer. It is a grand and beautiful industry, which at once enriches the proprietor and the State without injuring anyone, an excellent tax, whose cost of collection is next to nothing.

The salt-gathering is an important operation, which, as you may suppose, takes place after the heats of the summer, when the ardour of the sun has evaporated the excess of water in the basins. This gathering-in demands as many hands and as favourable weather as the wheat harvest, and causes as much anxiety to the director of the saltpits as the harvest to the agriculturist. For a whole month, in fact, a colony of labourers, resembling that of the harvesters that offer their help to the farmer, encamp in the midst of the salt district, living under tents at the cost of the proprietor and receiving wages for their work. Now it is of as much importance well to choose the time for taking up the salt as for getting in the harvest, for if the season be rainy, besides the loss of produce, the maintenance of the workmen, who are kept idle, occasions great expense. Every day thousands of pounds of bread, meat, and potatoes have to be provided, besides wine, which, however, is not dear in this neighbourhood.

What becomes of the mother-water of the basins after the salt is deposited? A short time ago they were wasted, but now are the source of much profit, thanks to the ingenuity of a *savant*, who made several splendid discoveries respecting them. After having extracted from this water a new and simple, now celebrated substance—that is to say, bromine—M. Balard has found means to utilise the water. By subjecting it to the action of cold during winter, M. Balard produces from this exhausted water another saline water, invaluable in the arts; so that by combining the action of heat in summer and cold in winter, even slight, one obtains, by means of these economic powers, all sea-water offers for our use.

I left the salt district mounted on a Camargue pony, full of ardour and sure-footed, though unconscious as yet of the shoeing-smith's skill, and accompanied by a guide, who is indispensable in the midst of these salt plains, subject to the mirage and without regular roads.

SECOND EXCURSION IN THE CAMARGUE.

It was in the spring of 1857 that for two months I attended a meeting of the medical faculty of Montpellier, a meeting which was full of interest for me, for there I saw for the first time the spectacle of a school in which masters and pupils march under the same colours, under the incontestable authority of the father of medical science, obeying the same word of command, the principle of life, and professing the same doctrines. The worship paid to Hippocrates in this sanctuary of spiritualism¹ in our day is a strange spectacle, rare and touching at the same time. The doctrines of the faculty of Montpellier may not be shared, still we cannot deny it the name of a school, to which it alone perhaps is now entitled.

After these long and numerous sittings, which I had assiduously attended, I felt the need of violent exercise in the open air, a need in accordance with the true principles of hygiene.

At a certain age the organs have a tendency to get choked with fat, the body fills out, grows heavy; and this tendency is all the greater, since it manifests itself precisely at a time when easy circumstances, attained to by labour and occupation, incline men to a more sedentary life. If you do not take care, you gradually lose your strength and suppleness, the equilibrium is destroyed, the organs so predisposed get congested to such a degree as to bring on infirmity. Now, the question is not only to live as long as possible, but especially to preserve one's faculties, without which life is scarcely worth prolongation.

¹ The word here is used not with the meaning attached to it by disciples of spirit-rapping and table-turning, but in its classical sense, meaning a system which only admits the spiritual element.—*Transl.*

It is not so easy as generally imagined to combat that tendency to the thickening of the tissues, and to maintain a correct medium. Take exercise, you are told. Rise early and do not eat too much. The advice is good, but few persons have the courage to follow it perseveringly. Besides, taking exercise and so on is all very well, in fact important ; but what is the good of saying so? Your walk must have an object, and one cannot every day measure a certain number of yards with no other purpose than that of getting one's limbs in motion. It is not everyone can thus reduce himself to become a walking machine.

Hunting is a great resource for men, and I am convinced, in spite of all my respect for the products of the mind, that man was more intended by nature to hunt and roam through woods and fields than to scratch paper while seated in a chair. Happy, then, are those who can give themselves up to the pleasures of the chase, but one cannot always and everywhere be hunting. Sometimes hunting is scarce and difficult. A man who has his occupation cannot, after business is over, go off with his dog and gun for a stroll. He must have leisure to go to some distance to find the preserves, where he meets with something better than the sparrows that satisfy the hosts of sportsmen that visit the south of France. And if these sparrows only amused these simple-minded sportsmen ! But they are set before you in the shape of roast game in this happy part of the country ! Now, we northerners cut but poor figures before such small fry.

There is hence no other resource but occasionally to undertake a somewhat distant excursion to inhale the fresh breeze, and refresh the body after too long a rest by fatigue in the open air. This decided me to set out for Camargue.

I selected Camargue, because this part of the country is very curious on account of its strange aspect, because it is within our reach, and because the sea is close at hand.

Camargue is the large island comprised within the two arms of the Rhône which divide below Arles and form a triangle, whose base is the sea, and of which each side is not less than ten leagues in length. It contains vast ponds, marshes, true

steppes worthy of the charming description of them by M. Philarète Chasles,¹ saltpits, and also excellent farms, which in no way yield to those of rich Normandy. Nothing bounds the view, unless it be, as at sea, the curvature of the earth; and you pass over immense solitudes without encountering a soul, except now and then a custom-house officer, appointed to guard the salt-works and coasts. You do not even find a pebble that you may mechanically kick before you, for the whole country contains no stones.

I had already visited a portion of Camargue, having made a short trip to Aigues-Mortes and the saltpits of Peccais, situate beyond the island, but possessing all the physiognomy of Camargue, and to the castle of Avignon, which formed one of its essential features.² I wished to know the rest, as much at least as the scarcity of lodgings for travellers will allow, for unless you encamp in tents there are no means of approaching the mouths of the Rhône.

I started on the first of April for Aigues-Mortes, not by way of Lunel, which is the proper road, but in following the sea-coast. My object, I repeat it, was to walk to tire myself from long repose by somewhat violent exercise, and by breathing the fresh and bracing sea-air. I could therefore do no better than follow the beach, which at the same time is the longest and most solitary road.

Accompanied by my two dogs, my gun on my shoulder, to amuse myself in shooting sea-birds, my foot constantly laved by the wavelets, I reached in five hours the singular town of Aigues-Mortes—one cannot say a ruin, since it is intact, as it left the hands of Saint-Louis, but the most curious antiquity I know of in France besides old Carcassonne, the castle of Clisson, and the great round tower of Coucy.

The next day I started with a guide to penetrate into the Camargue.

The road sometimes now winds over dikes, passing across

¹ See *Journal des Débats*, March 8, 1857.

² See *ante*, p. 53.

ponds, which, for the size, might well be called lakes, now through deserts, whose solitude is only disturbed by birds of prey, flights of sea-ducks, wild ducks of every variety, flamingoes and many other birds, for the island of Camargue, with its marshes, is a place of passage and rest for all migrating birds. You also encounter herds of wild bulls and those Camargue ponies whose pace is so lively, whose foot is so sure, and which are used for riding and threshing corn, and, lastly, flocks of sheep. Clumps and even considerable woods of Italian pines, displaying high their graceful crowns, form oases and answer in these wastes to the palm-trees of Africa.

Thousands of rabbits, and, what is still more agreeable for lovers of the chase, numerous foxes inhabit these retreats, and it is to this spot the *élite* of Montpellier sportsmen repair, to indulge in sport which might make the English sportsman envious: sport on sea and land, for gun, beagle, and even harrier, which is scarcely to be met with elsewhere in France; everything meets in Camargue, with fishing, and miraculous draughts sometimes, when the sea has carried masses of fish into the ponds, whence they cannot again escape. Hawking alone is wanting, though it might also be practised here, as it is occasionally practised in Africa.

Three or four leagues from Aigues-Mortes you reach the arm of the Little Rhône, which you must cross to enter Camargue, properly so called. In two short hours you reach the small town of Saintes-Maries, or Notre Dame de la Mer, situate on the coast.

This small town, which has only 700 inhabitants, though, as it is said, it once had 3,000, is gradually decreasing, and will finally disappear altogether, but has yet a long lease to run, for the worst favoured towns have tough lives, since man is so slow to quit his native place, even when it is scarcely better than an eagle's eyry perched upon an arid rock.

But there is not even a rock nor any shelter here, and travellers ask how people could think, not of pitching a tent or building a few huts for a temporary purpose, but of founding on such a spot a real town, built of freestone, with a large

church and substantial dwellings, whose inmates formerly were numerous and well-to-do.

The town of Saintes-Maries is on the coast, yet it could not be the sea that attracted the first settlers, for the beach offers not the smallest creek for sheltering a fisherman's boat, and the coast is not propitious, as may be seen by the numerous débris of boats and ships with which the shore is strewn. On the land side there are only marshes ; stone there is none, that must be fetched from a distance of twenty leagues, from Beaucaire. Finally, there is not even water fit to drink, and the poor inhabitants of Saintes-Maries are compelled to send for it to the castle of Avignon, four leagues off.

What, then, is the origin of this Notre Dame de la Mer ? It is miraculous ; it must be attributed to the relics of holy Jacobé and holy Salomé, who were wrecked on this coast. On the spot where, according to tradition, these holy women landed, after their miraculous passage from Palestine to the coast of Provence, and whence they started to convert the pagan tribes of the south, there sprang up a source of fresh water, around which some families settled down and built a chapel. By degrees the chapel became a memorial church, which still exists, in which are deposited relics of the saints, the object of the country's adoration, and to which the inhabitants of the adjacent country come in pilgrimage on May 25 to pray for the cure of their diseases. At that period the streets are crowded ; thousands of pilgrims fill the town and scarcely find lodgings.

Unfortunately the spring of sweet water has not been preserved ; it dried up, and this want of water is now the greatest bane of the country.

It was not the time of the pilgrimage when I arrived at Saintes, and yet the town was full, and all the rooms of the only existing inn were occupied. Great activity prevailed in this remote district of Camargue, in the centre of a sandy waste. Engineers and contractors, and numerous workmen, were encamped under tents. Government, in fact, has not forgotten this distant and unknown part of France, and is accomplishing a great work, which is to change the face of Camargue,

to render wholesome these marshes and to restore to cultivation a portion of these submerged lands.

The inclination is scarcely perceptible in this vast delta of the Rhône, and it is more the effect of the wind than the declivity of the soil which causes the waters to flow into the sea, or to return into the interior of the territory. When it blows from the north—that is to say, towards the sea—the ponds are emptied by pouring their waters into the Mediterranean. During my stay one mouth alone thus poured forth fourteen hundred thousand cubic mètres in a minute. If this direction of the wind were to last, the Camargue would in a few months be entirely dry ; but it soon changes. The wind blows from the sea, and then the salt water again invades the vast ponds to ten leagues inland ; it is a kind of continual high and low water, which, while it has the advantage of bringing a rich tribute of sea-fish, has the disadvantage of inundating the country, of rendering it unwholesome by the mixture of brackish and sweet water, and afflicting the soil with sterility by the deposition of salt, which forms a crust on its surface. It will easily be understood that, if this return of the sea-water could be prevented without hindering the efflux of the water in the ponds, man would become the master of the soil of Camargue ; this would be a veritable conquest, which would supply France with a new and abundant granary. As beautiful crops of wheat might spring up there as may now be seen in the magnificent plain of Mitidja in our Algerian colony.

Such is the object aimed at by the construction of a dike reaching from the Great to the Little Rhône, and protecting the Camargue from the incursions of the sea. This dike, now nearly thirty-two kilomètres long, is nearly finished. Nothing remained to be done but to construct the artificial works destined to promote the efflux of the water and to prevent its influx. When the wind blows from the land, forcing the water of the ponds towards the sea, the flood-gates will be left widely open ; when it blows from the opposite direction, driving the sea-water towards the land, the gates will be closed. In this manner it is hoped that the Camargue will be laid dry, or

that the waters will at least be concentrated on some limited points, and above all preserved from all saline admixture.

But I longed to see another fact accomplished, and for which my stomach had long been sighing ; I wanted my dinner.

My appetite had been sharpened by a long walk and bracing air ; but the landlady of the inn was out, no one was as yet stirring, and the fire scarcely kindled on the hearth. Besides, provisions are scarce at Saintes-Maries ; little fish in consequence of the inclemency of the season, neither game nor poultry, few vegetables, bad beef of the wild bull, indifferent mutton, the marine grass being hard and of bad quality—all this did not promise a Lucullian repast. But these compulsory privations do not displease me ; these small miseries, confined to a bad dinner, an abominable bed, a room without fire, and troublesome insects, give a zest to life, and make us appreciate its pleasures. In my opinion, then, it is not only physically but also morally advantageous from time to time to give up the comforts of home to plunge with your knapsack on your back into the mountains or remote localities, far from highroads and good inns, at the risk of poor suppers and bad lodgings. With what delight one returns to one's own fireside, well-served meals, and well-appointed beds ! The mind feels no less refreshed than the body after such adventurous excursions in the open air ; it re-assumes its liveliness of impression as the limbs re-assume elasticity ; it finds new enjoyments, acquires activity and animation.

Holding these principles, and finding pleasure even in privations, I philosophically waited until some movements of good augury should become perceptible in the kitchen. I must do justice to the master of the inn ; he exerted himself and sent out messages in all directions, being anxious to treat a traveller well who came to Saintes-Maries of his own free will and simply to see the country. Having been informed of my fondness for fish, he did all in his power to procure some, and was at last fortunate enough to find one of those small turbots so common in the Mediterranean, and rather fine-flavoured, though not so good as those of the ocean. This was a royal dish for a hungry traveller lost in these distant regions. A rail I had shot on the

way made a delicious roast, and as besides this I had good soup and an omelet, the reader will see that my object had failed, and that it was not at Saintes-Maries I was to encounter those small miseries which I look upon as a happy corrective of the indulgences of life.

I was much amused in watching the preparation of my dinner by a chef-de-cuisine, whose skill I admired. He was an old sailor, a true type, worthy of the artist's pencil; he seized the live fish, gutted and cut it up, put it into a small saucepan with wine, oil, vinegar, pepper, and salt, set the whole on a flaming fire, watched the operation with an attentive eye, as if he had held in his hand the helm of his boat, and in less than a quarter of an hour put before me the best *bouille-baisse* I ever ate. I paid him many compliments, which he duly appreciated.

The dining and coffee room of the inn became very animated in the evening; the company was very numerous, consisting of contractors, overseers of the works, some sea captains lately wrecked on the coast, and workmen employed on the dike. The mistress of the inn, a kind of Dame Grégoire, after the type of Arles, lively and pleasing, having answered everybody and everything, soon by her activity restored the whole house to its ordinary routine. Coffee, brandy, beer, were everywhere being poured out with some pleasant remark to every customer. Here was a woman that needed not fear the vapours and complaints that consume so many fashionable ladies, and many country dames languishing in loneliness would envy her the society she sees every evening; the works of the dike make at once her fortune and her delight, but what a fall and what solitude when they terminate!

I was obliged to leave Saintes-Maries and to reach Arles in one day, for in Camargue there is no possibility, for want of lodging, of cutting a stage in two. Ten leagues are a trifle, but what rendered the route disagreeable was the necessity of going due north, right in the teeth of an icy wind, such as prevails only in the valley of the Rhône, and is unknown in central France. The cold was intense; there had been several degrees of frost during the night; all the ditches were frozen over, and my dogs

could not drink without breaking the ice. Four or five degrees below zero are nothing when the weather is calm; even ten to fifteen may easily be borne when the air is not agitated, but during a sharp and violent wind a few degrees alone may become insupportable, and give us a taste of Siberia. You must visit the south to feel the cold I felt during this trip; it is never cold to such an extent in the north, or at least not in the same manner and with similar contrasts—a hot sun which pierces you and causes you to feel all the sensations of summer when you are sheltered from the wind, and a benumbing cold when you meet this wind and walk in the opposite direction. I could in perfect comfort rest and sleep in the sun behind a straw-rick, whilst when exposed to the wind I was compelled to wrap myself up in my cloak and beat my feet against the ground to get warm.

My excursion ended at Arles. Thence the railway quickly brought me back to Montpellier, and, once out of the valley of the Rhône, I felt only the warm breath of spring.

EXCURSION TO CORSICA.

A COUNTRY where man is so close to nature, and where nature itself is still very much as it came out of the hands of the Creator, offers a plentiful field for observation, and I hope I shall be excused retracing here some of the features of these human physiognomies and picturesque sites which by the progress of civilisation and science are daily removed farther and farther from us.

Before quitting Ajaccio for Guagno I visited some of the shepherds who descend from the mountain, and, with their flocks and families, spend the winter in the neighbourhood of the town.

The shepherds of Corsica cannot be compared with our shepherds of the mainland. These pastoral proprietors lead free, independent, and comfortable lives. The milk, flesh, and wool of their sheep, goats, and pigs feed and clothe them, and these animals cost them almost nothing, thanks to the right of pasturage on the vast territories of the communes. The average produce of a flock of twenty goats is estimated at from three to four francs a day; wherefore also the shepherds, on being reproached with the damage done and the obstacles presented by these animals to arboriculture, will reply that no plantation is so profitable as the rearing of goats. Some portions of the soil supply them with wheat, barley, oil, and wine. The chestnuts they derive from their forests in great abundance add to their resources; in fine, in the month of August everyone has stored at home nearly all the provision necessary to maintain him for a year. Therefore in Corsica we meet with neither hired labourers nor poor, strictly so called. You have no chance of giving away a penny either on the highroad or in the villages, whose appearance is most wretched.

The Corsican peasant possesses the material means of existence ; but you must come into this island, and especially visit its interior, to see how little man wants to live, and how many imaginary wants industry has created. I have often asked myself, in seeing those peasant families, where the wants of life reduced to what is strictly necessary are supplied without much labour or care, where the absence of superfluities and unknown enjoyments is not felt, whether, in one word, the life of these poor countries, but where everyone lives on his own small bit of land, working only for himself, was not on the whole preferable to that of rich countries, where industry spreads ease and money, but developes at the same time tastes and wants which are only seldom satisfied. If you put in one scale the enjoyments and cares, the refinements and privations, and the endless labours of civilisation, and into the other the simplicity of this frugal and severe existence, but free, full of leisure and security, as far removed from the anxieties of indigence and misery as from luxury and wealth, I do not know to which side the balance will lean. What strikes me is that in Corsica, in these numerous families where children swarm, you never hear fathers complain or be anxious about the number of their children. On the contrary, they say, ' Our children are our fortune ; the more we have the more satisfied we are.'

If the advantages of this simple life were only the prize of ignorance and barbarousness, I should not hesitate to condemn them ; but I have already mentioned that these shepherds are less barbarous than many of our peasants. Most of them can read, and take an interest in the news of the world. They reason very well on the advantages and disadvantages of different conditions. ' We have neither industry nor money,' they often say to me, ' but want nothing. Our women spin the wool of our sheep, weave our coarse clothes of Corsican cloth, make the linen of our shirts, and we live by the produce of our flocks and the bits of land we cultivate without much art, but also without much trouble. Industry would bring us money, and increase the price of commodities, but the capitalists would purchase our land, and we should be obliged to work for them.

We prefer gathering in what we need, working only for ourselves, to earning large wages in working for others. The hired labourers of the mainland are less happy than we.'

These primitive manners make a profound impression even on those whom fortune or the successes of a brilliant career have carried far from their homes, and who have become identified with the movement of modern civilisation. The Corsicans, as a rule, are sober, economical, grave in their amusements, and know how to live on little, even after having known comfort and luxury. I have met many old officers who, having lived in France at Paris, have returned to their poor villages and Corsican life, not only without regretting the delights of their former life, but with the conviction that there is no better existence than that among their mountains, nor better dishes than those prepared by their own hands. I could mention a famous general, who seems more happy here, leading the life of a labouring soldier, than in the midst of the greatness amidst which we formerly knew him. In fact, nowhere is the love of one's country carried to a higher degree; the Corsican's attachment for his island is a real passion.

Pleasant and interesting excursions may be made in Corsica. I have just made one in the most desolate and savage part of the island, which I recommend to tourists to repeat. It is neither what you admire in Switzerland nor what charms you in the Pyrénées, though I often say that Corsica is Switzerland with the sun and climate of Italy; these are noteworthy distinctions. This remembrance and juxtaposition are only called up in me by snow-covered mountains, under a beautiful blue sky. But when you climb these mountains, wander through the woods of pine and chestnut—when you mount the summits and descend into the ravines—you find neither Switzerland nor the Pyrénées. These mountains are not formed on the gigantic model of the Alps. You do not see those grand phenomena of nature which give rise to glaciers, lakes, and cascades. It is something far more rugged and savage—rocks of a form and tint seen nowhere else. Prodigious stalactites, so to speak, rising up into the sky in points, needles, spires, or immense

cones, or, as it were, falling down in cascades, present all the aspects the most fantastical imagination can call up—ruins of castles of the Middle Ages, Gothic churches, and a thousand other objects still more fanciful and impossible to describe. And these monuments of the convulsions of nature possess a colour which would animate the palette of a painter. Masses of livid rocks glare by the side of other rocks of ferruginous red, which would render the cathedral of Strasbourg pale beside them. Certain rocks of red granite, bearing a greenish lichen, resemble copper or bronze mountains spotted with verdigris. The road from Evvisa to Otta, and from Otta to Piana is most remarkable in this respect. If Corsica were a civilised country, frequented by tourists, the baths of Guagno, situated close by, would not lack visitors; and the road I speak of would soon be furrowed by trains of travellers fond of the beautiful horrors of nature.

Not far from Vico is the splendid forest of Aitone—a forest of centenarian pines—into which you may roam for leagues, and which contains springs of fresh water, beside which you may make halt to breakfast. Springs are very much sought after in Corsica. Man and beasts are judges of good water, and do not fail to stop along the road by springs famed for their freshness and purity. I rode on a horse that passed with indifference by the side of a number of running streams, but hurried forward as soon as he approached a spring of really first-rate water. As soon as the summer heat begins water is brought to Ajaccio from the best sources around, and there is a perfect trade in water. Without being under the care of nymphs, as in ancient times, springs have somewhat of a sacred character in the opinion of the country people. They are never damaged, and even where the work of engineers has sometimes been destroyed out of spirit of revenge, the water-conduits were respected.

From the forest of Aitone I went to Otta by way of Evvisa, descending the famous declivity of Spelonca. Otta, in fact, is nearly at the bottom of a frightful chasm, whither you descend from the heights of the forest by a kind of interminable staircase made across heaps of rocks cast about pell-mell, on which

the mule alone can safely set his foot. In the Alps I have seen more abrupt descents, edged by higher precipices, but none as frightful, wild, and remarkable. It is here those strangely-shaped rocks begin—the stalactites spoken of above—with such warm tints and picturesque effects.

If in Corsica we do not meet with the verdant valleys of Switzerland, we are still farther from meeting with the charming châteaux and comfortable resting-places which, as by enchantment, are found in the most solitary spots in Switzerland. If in descending the Spelonca I had been seized by a sudden pain in the knee, which nailed me to the ground, as happened to me on descending the Reichenbach, or overtaken by a terrible storm, as on the Great Scheideck, I might in vain have called for a sedan chair, or looked forward to a good supper and bed.

Otta is a lonely place, without any other means of communication with the outer world but the frightful paths spoken of, and which you must follow for four hours to arrive there, and for four to leave it behind you. There is no kind of inn; you must appeal to Corsican hospitality if you do not wish to encamp in the open air, but this hospitality will not be refused. My travelling companion, whom the fate of revolutions has cast from the plains of Poland upon this volcanic island, had in this village a relation of his wife's, thirty-three degrees removed, who hastened to receive us and to provide entertainment for us and our horses; and when on the following day we wished to thank this worthy man by testifying our gratitude for his kind reception, he simply replied, '*È il mio dovere* (it is my duty); are you not the relation of my wife, and is the gentleman not your travelling companion?'

I thought I had seen the most frightful of roads when descending the Spelonca, and said so to my guide, but he replied, 'You are mistaken, sir; you will see when we are at the "rock."' In spite of my confidence and desire to see the most beautiful horrors, I thought there was a little rhodomontade in the answer, but it was only the truth.

For several leagues the path skirts the side of the rocks bathed by the sea, ascends crests, descends into inextricable

thickets, where no outlet is perceptible ; suddenly the rock rises up perpendicularly, and so high that it would be impossible to get beyond it, but for a fissure into which the path insinuates itself like a serpent, but with such short twists that a horse larger than a Corsican horse could not turn round in them.

On issuing from this labyrinth you descend by steps cut in the granite rock, and arrive on a beautiful plateau, on which is situate the village of Piana, which commands the sea. Is it not to this rugged nature we must ascribe the character and manners of the inhabitants?

From Piana to Carghese the road offers no further difficulty. This ancient Greek colony undoubtedly still preserves traces of its origin, but there have been so many intermixtures that nothing externally distinguishes the inhabitants of Carghese from the rest of the Corsicans, unless it be that their territory is much better cultivated. Here wastes are no longer seen, nothing meets the eye but fields of wheat, rye and barley, gardens and vineyards.

After a very poor repast I had still a five-hours' journey before me in order to reach the highroad, and to find a better inn than the dismal huts of Guiterra. I was worn out and in no humour to give way to the contemplation of the beauties of nature ; my spirits were failing, for the interior torch grows pale when the stomach is empty, so much the immortal principle of our being is subject to the vulgar wants of the body. Nevertheless, the country between Guiterra and Grosseta is so beautiful, the valley of the Taro so blooming and rich in vegetation, the trees are so vigorous, so varied their tints, and the whole country so diversified, that I could not help being delighted and finding the road too short.

I never tire of admiring beautiful trees, and here I saw the most beautiful and majestic, splendid holm-oaks and chestnut-trees covering immense spaces with their foliage. There are in Corsica chestnut-trees truly monstrous ; I have seen some whose trunks measured fifteen mètres round, and am told there are still larger ones. These ancient giants are curious, on account of their fantastic and distorted forms ; their trunks

'often resemble more a rock than a vegetable stem. They are often hollowed out, forming caves in which ten men could find shelter. Rot or the shepherd's fire has invaded and destroyed the vast core of these gigantic plants ; their largest boughs, internally broken and eaten away, gape like large jaws or enormous chimneys, and from these bodies, apparently dead, from these despoiled and whitened skeletons, spring twigs as fresh and fruitful as if they came out of the earth itself. All the chestnut-trees, placed along the road, have scars, ill-shaped tuberosities, full of holes newly made by means of hatchets. These are old wounds from Corsican bullets, for these trees serve as targets for musket-practice, the habitual amusement of the inhabitants.

My guide was as tired as myself on our arrival at Grosseta. He was an old soldier, who had been on the mainland, and we had talked about Paris. He had touched my heart by speaking to me of his only son, then in the army, whom he had not seen for a long time, and whom he loves tenderly. 'Ah ! I am a poor man,' said he to me in a jargon half French and half Corsican, and with penetrating accent, 'but I would give my white pony to see my boy again.'

I have said enough about the mountains, rocks, and forests of Corsica ; let me say something concerning a delicious grotto, which for its own sake would be worth a journey. It has not been known long, wherefore Valery does not mention it.

The grotto of Brando is situated at two leagues' distance from Bastia, on the coast, near the village of Erbalunga, and belongs to an old officer, who discovered it about ten years ago amidst the rocks, where he has made himself a charming retreat. In digging to gain a little soil on these rocks, which he has transformed into gardens and terraces, M. Ferdinandi suddenly came upon a profound excavation, descending into the bowels of the mountain. He must have thought himself in the mysterious dwelling of some fairy, or a palace of the 'Thousand and One Nights,' when the light fell upon all these tiny columns, these needles, these draperies of alabaster sparkling with crystals ; in fact, upon one of those elegant grottoes, adorned with sta-

lactites and stalagmites, which seem cut out by the capricious hands of an artist. Well, to understand this phenomenon, we must bear in mind the process employed by nature to produce these fantastic sculptures.

From the vaults of certain grottoes drops a water charged with calcareous salt, which it holds in solution. The water comes down drop by drop and evaporates. As the evaporation proceeds the calcareous salt crystallizes, as sea-salt is deposited in separating from the water carried off by heat and air. Sometimes the drop of water evaporates before falling from the rock, and crystallization takes place on the vault of the grotto itself. A fresh quantity of water dripping down and evaporating a fresh quantity of calcareous salt is added to the first, producing stalactites, as the water running from our roof in winter forms those beautiful icicles which increase as the water freezes. These icicles, which French children call 'candles,' are a kind of stalactites produced by the freezing of water; the real ones are due to its evaporation and the crystallization of salts. The result is absolutely the same, and marvellous is the aspect of these thousands of needles, isolated, combined, agglomerated, or symmetrically ranged beside each other like the threads of a web, and forming transparent veils, curtains, and draperies, the whole sparkling with a thousand fires, reflected by the crystalline facets.

At other times the water, percolating in larger quantity, falls on the ground, and evaporation and crystallization take place there: a column gradually arises, which is the stalagmite ascending to meet the stalactite descending from the vault; their extremities approach, join, and are confounded, and thus give rise to columns, which seem to sustain the vault of a temple, and whose different courses have taken centuries for their formation. Some are complete, others in various stages of formation; hence a thousand fantastic shapes impossible to describe. On one side there are Gothic chapels of the most delicate architecture, on the other the débris of rough-hewn statues or statuettes; sepulchral lamps, alabaster lustres descending from the vault, fantastic beings petrified raise towards

the summit their mutilated limbs or repose enveloped in winding-sheets.

The accidental irregularities of the soil, the unevenness of the rock, add to the effect of these subterranean caves. Here the vault rises like the dome of a church, there it sinks down to the ground; now you may walk upright, now you must crawl, pass through the narrow fissures, ascend easy steps, or descend until a network of stalactites or stalagmites bars your way. The process of filtration and crystallization always going on, a time would arrive when the grotto would be entirely obstructed, did we not destroy a portion of this beautiful work. Other chambers of the grotto remain, perhaps, yet to be discovered, but the way would have to be opened, and for this purpose the hammer must be used on these thousand slender columns, as the axe is employed in a virgin forest. This would be a great pity, and the attempt cannot be made with too much caution.

Now represent to yourselves this elegant grotto of Bando, lighted up with lamps artistically distributed in the countless windings and turnings, suspended in those natural lustres, placed on candelabras sculptured by the mysterious architect, and you may easily imagine the admirable spectacle which such a phenomenon must produce. Now, it is thus M. Ferdinandi does the honours of his grotto; he displays studied refinement, coquetry, and almost love in the manner he shows it to us in all its adornment; it is his pleasure, his happiness, and his glory. Before introducing us into the grotto we are invited to rest in small saloons cut in the rock, decorated and furnished with fragments of stalactites; tables, chairs, chimneys, all are of the same material. This cabinet of natural history serves as entrance-hall to the grotto itself. The visitor is under many obligations to the proprietor for so much attention and the enjoyment he affords him; he would like to thank him for them, but, contrary to the habit of his like, M. Ferdinandi does not show himself to receive them.

Is this not a pretty specimen of the natural curiosities of Corsica? Were we not right in saying that this island is a

kind of museum, in which you find specimens of everything? For it also has its grottoes of azure at Bonifacio, its marble quarries in the neighbourhood of Corte, its granite rocks, out of which they cut monoliths as large as the obelisk of Luxor, its famous orbicular granite, whose structure is so original, so strange, and which it alone possesses, and concerning which we are surprised it does not found thereon a particular branch of industry.

The Niolo, a valley situated in the centre of the mountains of Corsica, is only interesting by its history and the customs of the inhabitants. The country is neither curious nor picturesque, nor has it any attractive plants; it consists of an arid plain, surrounded by a belt of high mountains, which can only be explored by crossing elevated passes or a narrow gorge at the bottom of which flows the torrent Golo.

But it is here the ancient customs of Corsica have found a refuge; here has been preserved the antique costume of the women, composed of a black velvet cap, a chemise buttoned up to the chin, and a blue cloth gown trimmed with velvet, open at the throat and bearing some resemblance to a riding-habit. Here also is the theatre of the famous scenes to which, less than a year ago, the destruction of the Massoni, the most redoubtable bandits of Corsica, gave rise. From afar you are shown the inaccessible cavern where they had taken refuge, whence they killed so many voltigeurs, and where they could not have been reached had hunger not driven them from it.

But Niolo is especially the home of that population of nomad shepherds such as are no longer found in any part of the mainland. This valley being very high up in the mountains, the cold is piercing, snow abounds, and during six months in the year there is no herbage for cattle; its soil being arid, the crops are poor, and do not supply the subsistence necessary for the inhabitants and their flocks. All the wealth of the country is comprised in these latter; they are countless. Every family possesses at least one hundred and fifty sheep or goats (some have as many as three hundred), a hundred pigs, oxen and horses. There are nearly eight hundred families in the five communes of Niolo, and thus there are about five hundred

thousand head of cattle to be fed. What is to be done in winter, when the mountains are covered with snow and the valley without resources? It is then the shepherds of Niolo leave their wives and children for six months of the year, departing with their flocks to spread all over Corsica and pasture their goats throughout the island, with no other restraint than that of the elements, in solitudes where our civil laws have not yet defined the limits of proprietorship. This emigration begins in the month of September; all able-bodied men and boys leave the valley, and no one is left in the villages but women, old men, and children.

The life of these romantic shepherds is a very hard one; during the six months they spend in the plain and roam over the pastures they sleep in the open air, on the naked earth, and with no other shelter than their coarse cloaks of goatskin, 'the shepherds' houses;' they do not even construct huts. *Bread of wood and wine from the rock*, chestnuts and *polenta*, with a little goats' milk, form their sole food. Well, all these shepherds of Niolo are strong and healthy.

Their lives are scarcely more pleasant during the rest of the year. When at home again it is still to live on the mountain and sleep in the open air. Only they now and then descend into the village, where they enjoy the society of their families.

The produce of these flocks during winter serves exclusively to pay the rent of the pastures; all the milk of sheep and goats, and the cheeses made from it, are given up to the proprietors of the land to pay the rentage. The shepherds of Niolo do not carry home one single penny at the end of their six months' migration; their flocks have lived and that is all. But then they have the wool, the kids, and cheeses they export throughout Corsica. During the fine season the common pastures of the mountain feed them at a trifling cost.

The prejudice which in Corsica maintains the right of taking the law into one's own hands exists in the highest degree in Niolo. There the laws are scarcely invoked to redress wrongs; the inhabitants settle their quarrels among themselves, and if they spread and grow serious, the hostile parties meet in some

retired place and settle them with bullets, and in these wholesale duels as many as eight or ten persons sometimes fall. Should the legal authorities interpose, the two parties would combine against them.

When a physician travels in Corsica he is soon surrounded by the lame and the blind of the country ; this happens to me in most of my excursions, but unfortunately I do not possess the gift of working miracles. I never encountered a larger concourse than in the valley of Niolo. As soon as it was known that a Parisian doctor had arrived, a procession of all the invalids of the country presented itself; they had to be arranged, as at a consultation at the Hôtel-Dieu.

Strange thing ! these populations, with simple and rough manners, are not free from any of the evils that afflict civilised populations ; beside positive diseases and organic affections you encounter neuralgia and hysteria, just as among the fine ladies of Paris ; since, in fact, the organisation and conditions of human life are everywhere the same, and vague and undefined evils, which on the one hand are the products of excess, on the other proceed from deficiency ; the equilibrium is no less destroyed by want, by the absence of comfort, than by superfluity and over-indulgence. How many young girls, with pale cheeks, complaining of palpitation and languor, have I not seen at Niolo, who need good food, a little good wine, and ferruginous preparations ! To these physical causes we must add the effects of imagination, which is the same everywhere, though exercised on different subjects ; we have but to observe the terrors to which these patients are a prey, and which would have no effect on our children.

*WINTER PROMENADES ON THE MOUNTAINS
OF LOZÈRE AND THE HAUTE-LOIRE.*

COMING generations will soon see nothing of France but the great lines furrowed by railways and the most important points which these lines connect. The interior of those squares which form the great chessboard of France will but seldom be penetrated, or at least people will not stay in them, and the spots most famous in our history, the most interesting points of our geological districts, will only be visited by learned physicists. I therefore think I may speak of the mountains of the Lozère and Haute-Loire, clothed with their winter garment, without fear of discussing a subject too well known and too common ; perchance I may have to point out some peculiarities calculated to interest the pleasure-seekers that read these pages.

Having started the first time on February 9 for the Cévennes and the Lozère, I was at Lodève overtaken by snow, which suddenly fell so fast that the vast plateau of mountains called Larzac became impassable. This table-land, which rises between the valley of Hérault and that of Tarn, has an extent of ten leagues each way. It is arid, almost a waste, with a few oases and country-seats. Towards the north it slopes towards Lodève ; in the south towards Milhau ; in the east towards Vigan, the home of the Chevalier d'Assas ; and extends in the west to the famous caverns of Roquefort.

The cheese-making of Roquefort is very curious. The cheese is a king of cheeses, ruling supreme on the choicest tables, yielding the palm only to Gruyère cheese. Let us then tarry a moment on this famous spot, where at certain periods commercial travellers arrive in great numbers to purchase a stock of

this commodity, which they export to the ends of the civilised world.

It is well known that the peculiar character of Roquefort cheese is the result at once of certain manufacturing processes, and the special influence of the place where, for a certain time, the manufactured article is exposed. Wherefore genuine Roquefort can only be made on the spot, and its production is very limited, which, together with its really fine qualities, renders it dear and scarce. The first qualities are difficult to get, since they are bespoke beforehand by the leading provision houses of France and abroad.

This, in brief, is an account of the manufacture :

The sheep of all the farms within ten leagues around supply the milk of which the cheese is made. The milking of sheep is an unpleasant operation to witness ; the poor animals yield their milk only by a kind of violence. They are seized and attacked with vigorous blows on the udders, which forces from each a very small supply.

This milk is collected in large caldrons, left to curdle, heated, and then moulded into cheese.

But, in order to become Roquefort cheese—that is to say, to acquire its green spots and peculiar taste—it must for several weeks be exposed and attended to in cellars possessing a special property. Farmers are unable to effect this transformation, and in no other cellars but those of Roquefort can Roquefort cheese acquire its peculiar qualities.

What, then, are these precious cellars ; precious indeed, for their number being small, they are very valuable ? What is their construction, and to what may we attribute their peculiar virtue ?

These cellars are not underground, like other cellars not less famous, situate at the other extremity of France—like the cellars of Champagne, cut several stories deep in the chalk, which seems to have been destined for this purpose. For, strange as it may appear, and almost leading us to believe that the Creator of this world had not only thought of furnishing the future habitation of man with all the products necessary for his

existence and development, but had also provided for our enjoyments, the wine of Champagne would be an impossibility if the vine and the climate necessary to produce it were not combined with the thick chalky stratum in which man, at little expense and without masonry, can excavate those immense subterranean galleries where the wine is made and preserved in an ever cool atmosphere. Thus also Roquefort cheese is due to a very singular natural phenomenon, whose secret we cannot penetrate, but some peculiarities of which we may point out.

I have said that the cellars of Roquefort are not subterranean. They are built against the side of an immense rock, and thus are not really cellars; you do not go down into them, since they are on a level with the ground, and have nothing but the darkness and coolness of real cellars. Imagine a wall of rock, broken by fissures whence issues a very cold wind. Against this wall raise vaults which have no other outlets than their doors and some air-holes, and you have a Roquefort cellar. The cheeses sent from all the neighbouring farms are brought thither, weighed, entered in a book, and then arranged on stages erected all round the cellars. Women from the vicinity, who arrive in the cheese-season, as the harvesters go to Beauce and Brie when the wheat is ripe, attend to the cheeses, wipe and turn them, without allowing them to become quite mouldy, though exposing them to the influence which is to develop in them those organic productions to which eventually they will be indebted for their flavour.

A great many things are told about the influence of these cellars on the constitution of the young girls, who are exposed for considerable periods to the atmosphere proceeding from the bowels of the earth; it is said, for instance, that during the whole time they are barren, and Heaven knows the consequences of this belief, which perhaps is not a fable, as regards their manners and morals. But let that pass and return we to the cheese.

What, then, is the quality of the air of these marvellous cellars? These are its chief properties: I have mentioned that the rocky wall which serves as a background to the cellars is full of fissures,

out of which issues a cold and dry air. This air undoubtedly proceeds from vast cavities in the mountains. Let us, in fact, suppose large subterranean caves, having openings here and there, and in which the outer air engulphs itself, is there cooled, and thence rushes through the fissures in the rock. That this is so may be proved by approaching the fissures, whatever may be the original source of this wind. The cellars are thus constantly traversed by currents of cold and dry air, incessantly renewed. This is the condition which seems necessary for the production of good cheese ; it must be exposed to the action of cold, but not damp air, which is constantly renewed, and such, in fact, is the nature of the cellars of Roquefort, and this is all we can say about them, as we wish to remain within the limits of ascertained facts. Is there besides some mysterious and hidden virtue in this air ? has electricity or ozone anything to do with it ? We know not, and therefore stop here.

At the end of a month or six weeks the cheeses have acquired the qualities which distinguish them ; they are then carried away by the agents, who distribute them over all the countries of the globe, and, as with many other products, it is often on the spot itself that it is most difficult to procure the best sorts of it. It is easier to obtain good Roquefort in Paris, and even in London and St. Petersburg, than at Sainte-Affrique and Montpellier.

From the plateau of Larzac I directed my steps through Milhau and Marvejols to Mende, the chief place of Lozère, which possesses the best water and the finest springs found in France.

There a new obstacle of snow awaited me, for this year has been remarkable for the quantity of snow which fell in the south, when winter seemed to be over. On February 20 all the roads of Lozère, of Gard and Hérault, even the railways, were invaded by such a quantity of snow, that all intercourse became impossible ; at Villefort, the native place of M. Odilon Barrot, it attained to a depth of a yard and a half. The position of a traveller who finds himself a prisoner in a distant locality at the bottom of a narrow valley surrounded by high

mountains, which he cannot cross—such a position is singular enough. Happy may he be called if he be not stopped in some hole of a village inn, such as I could name, where there is not even a room with a chimney! At Mende, with books, a little work, and good spirits, the stay is not unbearable, and I stopped there a week without being too much wearied. From my window I could admire the vigour and courage of the conductors of the diligences, who started at every hour of night and day, while the snow was falling in large flakes, until they were stopped by large accumulations, locally called *congères*, which were quite insurmountable. Then there was perfect immobility in the town; no news came from anywhere for several days; the Parisian journals, however, still reached us, being brought by mounted couriers, which was a grand resource.

At last a thaw set in, and with four horses I could ascend the highest plateaux of the mountains of Lozère, as far as Langogne, where I had business. You mount 1,280 mètres above the level of the sea, and there find a pyramid with an inscription indicating the watershed of the Loire and Lot.

You reach Pradelles, the most elevated town of the empire; here or in the neighbourhood was born Olivier de Serres, the father of agriculture in France. You also encounter the monument erected to the memory of Duguesclin, who died while he besieged Château-Neuf-Randon, whose governor, having promised to surrender, deposited the keys on the tomb of the hero.

You descend at last from the arid and desolate plateaux of these mountains into the delicious and fertile valley in whose midst there arises, like a sugar-loaf, the black rock, on whose southern side leans the town of Puy, surmounted by the pedestal bearing the colossal statue of the Virgin.

The volcanic country of Velay is highly interesting to science and the history of the globe. To geologists it was but a little while ago an insolvable problem. What were these black rocks rising here and there, and those kinds of circles, these pits which are found at their tops, and which extend into Auvergne? A plain manufacturer of lace solved the mystery while pursuing

his business, and Bertrand-Roux de Doue¹ is now a scientific authority. The geologists of all countries consult him, and since his discoveries the ancient province of Velay is frequently visited by *savans* coming from different parts of France, England, and Germany. The primitive animal kingdom has left instructive remains in the strata of this neighbourhood, and is still represented by some of the rarest species. Thus a few years ago a lynx was killed in the environs of Puy, perhaps the last to be found in France.²

The ancient celebrity of the Virgin of Puy, called the Notre-Dame of France, is well known. A black statue with the Infant Jesus, brought from the East by Saint-Louis, was given to the town of Puy, and soon became the object of great veneration and many pilgrimages. Louis XI. and Francis I. were particularly devoted to it. This statue perished in 1793, being burnt by the Vandals of that epoch; it has since then been replaced, but it is no more than an imitation of the ancient and venerated relic. The first idea of raising a gigantic statue to the Virgin on the rock Corneille belongs to Father Ravignan. But in 1850 the abbé Combalot realised the idea; after a fervent appeal of the zealous missionary a subscription was opened, and soon the project of the monument was elaborated, put in competition, and M. Bonassieux's model crowned. The inhabitants applied to the Emperor, who, beside his contribution to the subscription, gave the town some of the guns captured at Sebastopol. The municipal council of Puy deserve credit for having insisted on the statue being erected to the glory of the antique Virgin, the Mother of God, holding in her arms the Infant Jesus; it is, in fact, after this consecrated type the statue has been modelled; it is to the Queen and Mother presenting to the world her blessed Son, who is the Son of God.

What we most admire in this statue are its proportions and general effect. It required a correct eye to calculate the proper

¹ Bertrand-Roux de Doue, *Description géognostique des Environs du Puy en Velay*. Paris, 1828.

² See Brehm, *La Vie des Animaux illustrée*. Paris, 1869, i. 303.

dimensions of a statue standing at such a height and on so gigantic a pedestal. The result is completely satisfactory.

These are the exact measurements of the different parts of the monument. The rock rises to a height of 132 mètres above the ground, the pedestal seven mètres above the rock; and the statue is sixteen mètres high. This is rather less than the famous statue of Charles Borromeo, above Lago Maggiore;¹ but this latter is in wrought metal, whilst the Virgin of Puy is the largest cast statue, though not all in one piece.

When we have mentioned that the foot alone of the Virgin is nearly two mètres long, the reader will be able to see that it was no slight merit to have succeeded in giving to this colossus a graceful appearance, and so well agreeing with the locality and the objects surrounding it.

IN SWITZERLAND—FROM GENEVA TO BERNE.

We enter Switzerland by way of Geneva.

Were we better disposed for enjoying the beauties of the country, were our less oppressed heart accessible to sweet emotions, what pleasure would it not be to us to skirt the shores of the beautiful lake of Geneva, surrounded by its painted houses and gardens, forming as it were an enclosure of flowers, whose reflections contrast in its waters with those of Mont Blanc!

And why not? Why should we not give way to the impressions which the beautiful aspects of nature always awaken in us, and whose inexhaustible source is in our hearts? The soul is calmed at the sight of woods and mountains, whose dim outlines in the distance present to it the image of solitude and repose.

As for me, I never more intensely felt the sweet influence of the aspect of the country; never did I more admire the splendours of vegetation and of the landscape illumined by a bright sun of June; never was my soul more open to the harmonious sounds of eve, to that voice of Nature which seems to call man to her,

¹ It is considerably less, for the monument of Borromeo, including the pedestal, is 112 feet high.—*Transl.*

to lead him back to the truth by contemplating her eternal laws. Never did I better understand this language than since I have been compelled to seek a refuge in the country. The wearied spirit is relieved in seeing the order and regularity of the phenomena to which we owe the periodic return and development of the products of the earth ; it takes pleasure in observing these immutable laws, whose majestic accomplishment can never be interfered with.

I shall, therefore, not repulse the recollection of the picturesque beauties and natural phenomena I have witnessed. The reader will turn with me away for a moment from the spectacle of human works to contemplate those of God.

The most direct route from Geneva to Loèche is through the Valais ; but having settled my itinerary by way of Fribourg and Berne, to go thence to Bâle and Strasbourg, I directed my steps to Loèche through the canton of Berne. As I also desired to visit the Oberland, which I was not acquainted with, I settled at Interlaken.

I shall not speak of this classical route of tourists through Thun and Interlaken, nor of the delicious valley situated at the foot of the Jungfrau, with its beautiful lakes of Thun and Brienz. All this is now as well known as the Bois de Boulogne, and unfortunately almost as much frequented by fashionable equipages. I hasten on to Kandersteg to cross the Gemmi at an early hour, to arrive at Loèche by way of that singular path cut in the rock 1,600 feet high, at whose foot is situate the small village of Loèche-les-Bains.

The inn of Kandersteg occupies the bottom of the gorge, closed by the mountain you must cross to pass from the valley of Fritigen into the Valais.

On the side of Kandersteg the ascent is not very steep, and the road is quite practicable for horses and mules. It presents nothing remarkable until you arrive at the other side of the point, where the ground suddenly falls under your feet, and leaves you on the edge of that immense gulf, 1,600 feet deep, into which the eye plunges and grows dizzy.

When I arrived at the descent into this abyss, at eight in the

morning, after a four hours' walk, the clouds and mists of the night still filled that deep valley, forming a white curtain, waved about by the wind, and separating me from the valley. But soon a ray of sunlight warmed and dilated the clouds, which rose in long belts against the sides of the rocks ; and the veil being suddenly torn altogether, the shining roofs of the small houses of Loèche appeared in the distance, somewhat like objects seen through the small end of a telescope. The veil closed again, and the scene vanished. But the air being gradually warmed, as the sun rose and penetrated into the valley, all these white and rounded vapours began, so to speak, to dance in the air, and to rise like rockets towards the pointed peaks, where they sometimes remained attached, floating like pennons fixed to their staffs.

There was something fantastical in this spectacle—this kind of mirage ; and never have I beheld it in a more picturesque locality, or under more favourable circumstances.

All vanished at last under the influence of the sun, and the small valley of Loèche appeared inundated with light. The objects were so distinct, and their details so sharply defined in this transparent atmosphere, that it looked as if I should touch them on descending a few steps of this gigantic staircase, at whose top I was standing. But you must for more than an hour follow this steep path constantly winding back upon itself, and which clings like a large serpent to the perpendicular side of the rock, disappears in its anfractuosities to reappear a little farther on on crests and projections, whence the looks plunge into Loèche, as from the towers of Notre-Dame they plunge on the pavement.

It will be remembered that this marvellous road of the Gemmi, wrought in the side of this formidable wall—more than two thousand feet long, and so direct, that the starting-point and that of arrival are perpendicularly almost in a line—is the work of daring Tyrolese, who wished to open a passage from the Valais into the canton of Berne.

The small village of Loèche has nothing to attract the tourist. It consists only of wooden huts—for how were it possible to

build elegant and regular houses in a locality which for more than half the year is buried in snow?—fortunate, as long as its poor inhabitants are not entirely overwhelmed by avalanches. Still some fine hotels have within the last few years been erected on the less exposed sites.

Having had no time for excursions in the environs of Loèche, I shall not speak of the promenades to Torrenthorn, the Gugerhubel, the glacier of Dala, &c., which are said to be magnificent.

I resumed my road by the Gemmi, which I ascended between two and six o'clock in the morning, with an old guide, whom I should like to meet again, if ever I have the good fortune to make fresh excursions in Switzerland. This guide, with iron muscles, only grew tired when walking on level ground, but as soon as he ascended a steep path, which bathed me in perspiration, he found all his freedom of step again, and could have walked all day without stopping. The *force* of habit!

After having visited the most celebrated thermal establishment of Switzerland, I shall conduct you to one of the least known and obscure, which, however, on account of its situation, deserves to be visited by the lovers of the picturesque. Besides, travellers seldom fail to pass through the valley of Rosenlaui, where this small establishment is situated; and, however few stop to take the baths, all go to admire its magnificent glacier, one of the most beautiful and interesting in Switzerland.

On leaving Interlaken, the first visit is to Lauterbrunnen and its magnificent cascade; the next to Grindelwald, whose glacier is not to be passed over. Nothing resembles a glacier less, and those of Grindelwald and Rosenlaui present a striking contrast. The first, consisting of white and transparent ice, last year when I visited it, was undermined by a vast cavern, into which I introduced myself under the guidance of a little boy, whose daring more than once made me tremble. The vault of this cavern, at first very high, soon sinks down so much that nothing but a narrow passage remains, through which you are compelled to crawl. I hesitated to glide under this fearful ceiling of ice, whose slightest depression would have crushed

me ; but I had no means of resisting the tempting manner of my little guide, who, taking me by the hand, smilingly drew me into the low passage. I felt on my back this terrible vault of ice, several hundred feet thick ; and it requires but a slight effort of imagination to figure to oneself all the horrors of such a tomb, wherein the slightest movement of the ice might have buried us alive.

After having crawled along for some time on your hands and knees, you have the satisfaction to see the vault rising again ; you breathe more at ease, but still await with some impatience the moment when you shall again leave this fearful prison.

What is most curious in this cavern, with sides of such thickness, is that—thanks to the whiteness and perfect transparency of the ice—the light penetrates into it with as much facility as if you were only separated from daylight by a thin partition of glass ; therefore, also, this hollow is resplendent with the effects of the light, playing and breaking and reflecting itself upon the small crystals of ice.

The glacier of Rosenlaui, on the other hand, consists of dark blue ice. Nothing can be more beautiful than these immense prisms of ice, separated by fissures in which the blue tint becomes darker and darker, from the slightly shaded edges to the intense blue of the backgrounds. This glacier is suspended above a frightful torrent, which rushes down into a cleft of the rock, where you hear it roar without seeing it, such is the depth of the chasm.

Here you experience another kind of emotion, when, on ascending the glacier, you feel that the least false step on this ice—on which you cannot fix your foot except by the aid of small incisions made with a hatchet borne by the guide who walks before you—would precipitate you into this gulf, in which, without seeing it, you hear the water shatter itself with so much impetuosity. But how firm is the step of the guide—how confidently he puts his foot on the ice—and how much reliance you place on the hand he offers you in so assured a manner ! Yet my whole body trembled, when I saw one of these mountaineers leap on the very edge of the gulf with as much calm-

ness as we might do on the terrace of Saint-Germain. However, I followed him to the spot where the ear is stunned, the eye grows dizzy, to contemplate that imposing vault of azure ice, so boldly thrown across the torrent.

The small inn which offers a refuge to the traveller in this wild valley, and to which a small bathing establishment is attached, stands at the foot of this glacier. I may well call this inn a refuge; for having been overtaken by a storm in the pinewoods you cross in descending the great Scheideck, my wife and I arrived, drenched to the skin, at this inn, where on the whole you are well entertained. We felt the kindness of our host all the more, seeing that, having left Interlaken in the morning to return to it the next day, we were not provided with any change; and it was only with the help of a good fire and by borrowing clothes that we succeeded in getting dry. It will, however, soon be seen that I was not with impunity to be exposed to the torrents of rain through which we had to pass in this cold and narrow valley.

The chalets which serve as inns on the mountains are constructed of deal planks, which do not intercept the noises occurring in the interior of these habitations. Except that you cannot see from one room into the other, it is absolutely as if all the travellers were assembled in one room; you hear all that is said and done in the rooms above, below, and beside you.

I was therefore not surprised at soon being disturbed by the horrible noises of a troop of merry travellers who had just arrived, and were preparing, whilst taking their suppers, to pass the night at the inn.

By the gaiety of their discourse, the bursts of laughter that accompanied every speech and drowned their voices, so that I could not distinguish the idiom in which they spoke, I did not doubt but that they were French. I therefore entered the dining-room to share the hilarity of my countrymen, but was very much surprised to find myself in the midst of a company of Germans, young gentlemen from German Switzerland. But I entered none the less into conversation with them; and speak-

ing of excursions, these gentlemen asked me if I did not intend being at Berne the next day to be present at the grand patriotic festival, at which the most famous wrestlers of Switzerland were to meet.

This was a severe journey for a man who was not alone, to go from Rosenlauri to Berne, passing by the Reichenbach we wished to visit ; and Interlaken, where we had left our luggage. But urged by the desire to see one of those popular and primitive festivals, so much in vogue in Switzerland, we started next morning early, saw the famous falls of the Reichenbach, and arrived in time to catch the steamboat for Thun, where we were to meet our carriage to take us to Berne.

I forgot to mention that the mineral baths of Rosenlauri consist of several bathing-places, into which the water is brought from a sulphureous source rising in the environs ; this water is analogous to that of Enghien, cold like it, and warmed for the use of the patients.

We travelled as rapidly as possible to accomplish our great journey, when, on descending the mountain, where it is impossible to remain on horseback, I was disagreeably surprised on alighting to feel myself nailed to the ground by an invisible force, or rather by intense pain : it was rheumatic pain in the knee-joint, the consequence of the torrents of icy-cold water I had received the night before.

But the deepest valleys of Switzerland, and the wildest spots, always offer at the present day more resources to travellers than the environs of Paris. Scarcely was I thus fixed to the earth, unable to move and to continue my journey on horseback or on foot, when I saw a chair, carried by two sturdy mountaineers, make its appearance ; they took hold of and placed me on their litter, and gently carried me down several leagues, passing by the Reichenbach and the most abrupt paths, whence you enjoy a magnificent view over the valley of the Aar.

As to the patriotic festival of Berne, it was not worth the hurry we had made to reach it ; the wrestlings of Swiss athletes are not equal to one of the tricks of Auriol ; and every day you may see in the Champs-Élysées a thousand summersaults surpassing the gymnastics of the descendants of William Tell.

MINERAL BATHS.

MODUS OPERANDI OF MINERAL WATERS.

WHAT is the *modus operandi* of the baths, what are the resources of mineral baths, and what the different modes of administering the waters? What are the relations between physicians and patients, and what the special and general properties of mineral waters? Here are a number of important and difficult questions I do not pretend to resolve, but which I should like to throw some light upon by discussion, and by facts I have had opportunities of observing.

Before laying before the reader the little that is known on this subject, is it not necessary, first, to ask whether mineral waters have real effects, whether such as are attributed to them are not rather the results of imagination, change of air and mode of living, than of the properties of the waters themselves and the principles they contain? This question would be idle, if by the side of physicians that enthusiastically vaunt the efficacy of mineral springs, there were not as many that deny them every kind of virtue, except such as is obtainable anywhere by applying the substances resembling those held in solution by them. There is exaggeration on both sides, and truth lies between the two extremes.

Strictly speaking, we might dispense with discussing the question which consists in inquiring how mineral waters act, and how the effects they produce are to be explained.

The solution of this problem is not at all needful in medical science; for it is remarkable that the medicines whose effects are most constant, most certain, are precisely those whose mode of action at the same time is the most obscure and most incom-

prehensible—as, for instance, opium, quinine, mercury, vaccine, and all other specifics.

But thermal waters are not, strictly speaking, specifics ; and the study of their *modus operandi* is, moreover, so closely connected with the knowledge of the cases in which they are suitable, that the one can scarcely be separated from the other. If, therefore, the problem be still insolvable, we would at least indicate the best means to clear it up.

It is not indifferent in this question to invoke the testimony of antiquity, to recall the use made by the Romans of mineral waters, and to point out the numerous remains of thermal baths, temples, and vow-offerings, erected by gratitude, near the principal springs, still frequented at the present day.

Where have this great people not left traces of their long sojourn or brief passage ? Even in the most remote gorges of our mountains, wherever thermal springs existed, in the centre as well as at the extremities of France—in Auvergne, as in the Pyrénées—the Romans raised baths and consecrated temples to the beneficent deities of those localities. And whilst at the present day we succeed only with difficulty in erecting square buildings without ornaments, whilst some of our thermal establishments, devoid of all architectural pretences, are not finished, the excavations of Mont-Dore, Bagnères, Nérès, &c., reveal to us remains of rich sculpture, monumental columns, &c., which belonged to edifices worthy of great cities.

After all, we have but to appeal to the experience of past ages ; and this experience is one of the most valuable testimonies we possess in favour of truth—a testimony often more unassailable than the decisions of science and academies.

But if proofs of a less elevated order, more within reach of certain minds, are asked for, let us cite the example of animals, of broken-winded horses, which are every year taken to Eaux-Bonnes, Cauterets, Bagnères de Luchon, and which there, no less than man, and probably without the influence of imagination, experience the salutary influences of the waters.

Mineral waters are divided into five groups : *Sulphurous, ferruginous, saline, alkaline, and gaseous* waters.

But this is not sufficient. We must subdivide these too compact groups. I shall therefore divide the sulphurous waters, from the standpoints of application and convenience of invalids, into springs more or less exciting as regards the nervous system; into powerful and weak springs; into springs at once saline (I mean saline in a high degree) and sulphurous; into springs rich in chloride of sodium, that have a special action on the breathing organs; and, finally, as regards climate, into springs situate in regions more or less warm. The degree of temperature ought also to be taken into consideration, as well as the abundance of the water and the mode of administering it; but these considerations are only secondary.

In the first instance, it seems a well-established fact that the effect of thermal springs on the constitution bears no relation to the mineral principles chemical analysis discovers in them. Sulphurous springs, whose chief agent seems to be sulphur—ferruginous springs, that owe their chief properties to iron—probably owe a portion of their virtue to the way in which these substances are combined, their association with some other element difficult to be detected—for those richest in sulphur or iron are not always those whose action is most powerful. The springs of Barèges and the other natural sulphurous springs of the Pyrénées, Luchon and Cauterets, contain much less sulphur than certain incidentally sulphurous springs, such as those of Enghien, and are, nevertheless, in certain cases far more active than the former.¹

It is true that natural springs, besides sulphur, contain a peculiar organic matter, whose secret nature is but little known, and which modern science describes by the name of *barégine*. This matter, which is deposited in the form of a transparent jelly, is only found in natural sulphurous springs, and probably contributes to their efficacy.

Nor must we forget the high temperature of these springs, which undoubtedly acts powerfully on the constitution. This temperature cannot be replaced by artificial heat, which always

¹ See further on, Barèges, p. 157.

more or less excites and weakens the energy of the principles in solution.

The problem is still more difficult and curious as regards certain saline springs, in which chemical analysis discovers only a small quantity of matters quite out of proportion with their degree of energy, as in the springs of Mont-Dore for instance. There is, therefore, here something *unknown*, worthy of exercising the ingenuity of physicists and physicians.

Sometimes even the amount of mineral matter is so trifling in certain waters, that we cannot understand how they can affect the animal economy, and one is almost inclined to deny their action. The springs of Forges, for instance, do not yield as much as a grain of salt of the oxide of iron per litre. What can be the influence of so small a proportion of a substance we medicinally exhibit in such large doses to produce an effect? And yet no one disputes the highly ferruginous properties of the springs of Forges. The iron in these springs is undoubtedly combined with a peculiar condition which renders it more easily assimilating. The springs of Nérès present the same phenomenon as regards the salts which analysis reveals in them.

The waters of Plombières best demonstrate that thermal springs—those waters prepared in the bosom of the earth by unknown processes—partake of properties of which science and analysis can as yet give no account. There is a still more remarkable instance of these mysterious properties, well calculated to convince the most incredulous: the springs of Loèche in Switzerland, which, like those of Plombières, yield to analysis only a few saline matters, and whose action is most energetic, sometimes even formidable. The phenomenon of the breaking out, or rash (*poussée*), of the skin, manifesting itself sometimes by eruptions of red scabs resembling erysipelas, scarlet fever; sometimes by the tumefaction of the limbs or abundant transudation—a kind of suppuration of the whole surface of the body—this phenomenon, peculiar to the springs of Loèche,¹ is sometimes seen, though in a less degree, in the baths of Plom-

¹ See further on article on Loèche, p. 203.

bières ; *ebullitions* are found to arise which disappear by the very use of the water. One might be tempted to attribute this singular reaction either to the high temperature of the water or to the duration of the baths, and the maceration which the long stay produces on the skin ; for the patients remain no less than three or four hours a day in the bathing-tanks. But, in speaking of the baths of Loèche, I shall show that the breaking out is due to a special action of the water, independent of its temperature, and shorter or longer application to the surface of the skin.

Must we, with some authors, admit that thermal waters act only by their exciting properties, sometimes due to sulphur, sometimes to salts and earthy matters, but especially to their temperature ; and that all are alike, except as regards the degree of excitement they produce ?

We are well aware that the same complaints are sometimes cured by springs of different natures—by saline springs and by sulphurous springs, by sea-baths as well as by thermal springs. We have seen cases of rheumatism successfully treated by cold sea-water, as well as by the warm springs of Luchon ; just as in ordinary medical treatment, sometimes cold, sometimes heat, sometimes hot vapours, and sometimes icy compresses are successfully applied to limbs suffering from rheumatic pains. These apparently opposite remedies produce the same effect—a brisk reaction on the skin, which often removes the complaint ; but this is no reason to deny mineral waters a special action, which chemical analysis cannot satisfactorily account for. ‘Chemists,’ said Chaptal, ‘analyse the corpses only of mineral waters.’

Certain practitioners, experienced in the therapeutics of mineral waters, think that their action resides especially in the perturbation they produce, the excitement they create in the skin, the reaction they determine towards the diseased parts ; according to them, it is by raising up organic activity, re-establishing suppressed secretions, and giving fresh vigour to stationary diseases and languishing and choked-up organs, that the waters restore health, rather than by a special action, a

peculiar virtue over the nature of the morbid parts. In the opinion of these physicians, all thermal springs (except a few easily distinguishable) act nearly in the same manner: what we obtain from one might, in a higher or lower degree, be obtained from the other; and most of the springs of the Pyrénées would indifferently be suitable for the cure of the different categories of chronic diseases specially addressed to each severally. I will not vouch for this doctrine, but it was mentioned to me by a physician long attached to one of the best frequented establishments of the Pyrénées.

We conclude that the *modus operandi* of many thermal springs, like that of many medicaments, is as yet but little known.

CHOICE OF A THERMAL STATION.

The thermal springs which France possesses in such abundance and variety are one of the sources of wealth of our country, and the future can only increase this wealth, if we know how to turn it to account.

Our mineral springs, by their number and variety, may rival the most favourite watering-places of our neighbours, and even surpass them. Nowhere on earth is there found an assemblage of springs comparable with that which the Pyrénées present—nowhere can the weary bathers meet with finer spots; and to complete this *ensemble*, no country possesses in its centre springs such as those of Vichy and Mont-Dore, on its boundaries more beautiful beaches for sea-baths than those of the Atlantic and Mediterranean, especially since the great railway lines have procured rapid modes of transit to invalids, who are sure of finding comfort and good management in our watering-places, whilst they are getting cured of their complaints.

The mineral waters of the north, east, and west of our country are far from being so full of interest as those of the south.

Is it my fault, or that of the climate, sun, or aspect of the localities, that the mineral springs of those parts of France do not possess for the physician the interest and importance of those of the Pyrénées, Auvergne, and Bourbonnais?

It is true that the northern part of France in this respect has not so large a share as the southern. Draw a line from Nantes to Besançon, and on one side you will have the remarkable springs of Vichy, Nérís, Mont-Dore, and a host of other acidulated waters; and at the southern extremity the rich collection of sulphurous and saline springs, the precious dépôt of which is held within the bosom of the Pyrénées. On the other hand, in the northern part you only find, with a few exceptions, here and there ferruginous springs. Sulphur, carbonic acid gas, alkaline salts, and temperature, those energetic elements have disappeared to make room for cold springs charged with iron—an essential principle indeed, playing now-a-days a great part in therapeutics, but whose uniform action applies only to one order of diseases.

Moreover, steep mountains, narrow and deep valleys, torrents, pine forests, and picturesque aspects, are these not in fact the indispensable complement of thermal springs?

Now Flanders, Normandy, and even the Vosges cannot rival the Pyrénées. Hence, whatever may be the intrinsic value of the springs of Plombières, Bourbonne, Luxeuil, Contrexeville, Saint-Amand and Forges, they cannot pretend to the rank enjoyed by those of Luchon and Cauterets.

The great variety of mineral sources is an embarrassment for the invalid, and often even for the physician. How is he to choose from among these springs, most of which claim the power of curing some disease? Do not all hot springs, for instance, sulphurous or not, cure rheumatism and pains in the limbs? Are not all sulphurous springs good for skin diseases, old wounds, &c.?

Still, amidst all this confusion, some rules may be set down.

The embarrassment arises chiefly from the fact that these different springs, apparently most opposite, are equally recommended for affections of the same nature. I repeat it: all thermal springs are alleged to be beneficial in rheumatic complaints of every kind, and so are the cold by the aid of artificial heat. To what spring are we to give the preference in this

labyrinth of springs, all more or less thermal, which rise in every part of France and all round?

It must be admitted there is here a difficulty inherent in the nature of things, the present knowledge of mineral waters, and even of medical science. We do not yet sufficiently well know the constituent principles of the waters, their peculiar characteristics and mode of action. We do not always sufficiently distinguish the varieties of cognate morbid affections precisely to tell what special spring, what dose of mineralising principle, is suitable for such and such a shade of rheumatism. This science is not yet worked out; perhaps it cannot be worked out, and its elements, perhaps, are non-existent. Perhaps there is both in the mode of action of the waters and the varieties of diseases we take for our examples a common foundation which will always allow of our applying to these diseases remedies apparently differing, but possessing common general properties. For the present we admit that temperature, assisted by some exciting quality, is a general condition favourable to the cure of rheumatic affections. In this respect we are at the present scarcely more advanced than at the time when Madame de Sévigné went to Vichy to recover the use of her rheumatic hands.

Nevertheless, we shall find in the recent progress of chemical analysis, in the appreciating of constitutions, and knowledge of places, the means that will enable us at least to establish categories.

As to ourselves, we generally admit with the best authors: ¹

The springs of Bourbonne, of Bourbonne-l'Archambault, and Balaruc are beneficial in some kinds of paralysis.

Eaux-Bonnes, Mont-Dore, and Cauterets are very efficacious in chronic affections of the chest;

Vichy, Saint-Nectaire, Contrexeville, and Preste in enlargements of the intestinal canal and gravel;

Saint-Sauveur, Nérès, Bagnères de Bigorre in various affections;

¹ See Durand-Fardet, Lebreton, and Lefort, *Dictionnaire des Eaux minérales*. Paris, 1860.

Barèges, Bagnères de Luchon, &c., in skin diseases, rheumatism, and gunshot wounds.

Which, however, does not exclude taking into account individual circumstances, temperaments, &c., in order to select such and such a spring in preference to one analogous to it.

Among the powerful sulphurous springs there are some which act chiefly on the general nervous system, others again act more locally. Among the former, Luchon, some springs of Cauterets, Ax in Ariège, are especially rich in volatile sulphurous principles; the others, such as those of Barèges, Saint-Sauveur, and a few other springs of Cauterets, contain many fixed sulphurous principles. The state of the nervous system, its greater or less sensibility, must, therefore, decide the choice between these different springs and their analogues when sulphurous waters are to be used.

Among the mild sulphurous springs I place Aix in Savoy, Arles and Vernet in the Eastern Pyrénées.

But it must not be supposed that the springs in which the fixed principles predominate, even those which contain but little sulphur, are innoxious with regard to the nervous system, and leave it in peace; all sulphurous waters are more or less exciting. If, therefore, we have to deal with an eminently impressionable organisation, and sulphur be not an indispensable agent in the treatment, beware of sulphurous springs, however mild they may seem—even those of Aix. Go to Plombières, Nérès, Bourbon-Lancy, Bourbon-l'Archambault, Bagnères de Bigorre, Ussat, Lamotte, Bourbonne, Bagnoles, &c.

Among strong springs, that of Challes, near Chambéry, occupies the first rank. The strongest sources known indicate forty degrees on the sulpho-hydrometer; this one—a thing unheard of—indicates 200 degrees. As soon as it touches a piece of silver it blackens it, and when you drink it, you seem to drink liquid sulphur. This extraordinary water is cold. Besides its great proportion of sulphur, it contains bromine and iodine, and is very beneficial in the cure of goître. Two or three bottles of this water suffice to render a bath very sulphurous, wherefore it is used in some establishments, especially at Aix,

to increase in some cases the degree of sulphurousness required in the baths.

After Challes comes Enghien; then Allevard in Dauphiné.

When it is necessary to act on the skin, and at the same time to act on the digestive organs, go to Uriage, Barèges, &c.

The springs which chiefly act on the breathing organs are Eaux-Bonnes and Eaux-Chaudes, Gréoulx in Provence, and the springs of the Eastern Pyrénées, Sernet and Amélie.

As regards climate the waters of Gréoulx are within reach of invalids for more than six months of the year; those of Castéra-Verduzan in Gers, and those of the Eastern Pyrénées also enjoy a southern temperature.

Aix, in Savoy, for four months has a delicious climate; most of the other sulphurous waters are on the mountains with the conditions of elevated sites.

Ferruginous springs are very common in the centre, west, and north of France; there are some excellent ones around Paris, among others those of Passy. The most famous are those of Forges and Spa; both are very efficacious. The springs of Spa are more diversified, and the establishments more complete.

Among saline, alkaline, and gaseous springs we distinguish those that have a special and well-known action; the springs of Contrexeville, so efficacious in bladder and kidney diseases; the springs of Preste and the Eastern Pyrénées in gravel. It is almost unnecessary to mention the speciality of the waters of Vichy—their action on gout is known—and that of the waters of Carlsbad, which almost visibly disperse the most enormous enlargements of the liver. The famous bathing-tanks of Loèche are recommended for the most inveterate skin diseases, &c.

Paralytics and palsied persons have the choice between Balaruc and Lamotte—a kind of hot sea-baths—and the mud-baths of Saint-Amand.¹ The waters of Bagnères, Nérès, Plombières,

¹ The author might have added the mud-baths of *Acqui, la Bollente*, in the valley of the Bormida, in Montferrat.—*Transl.*

Luxeuil, Ems, and many others, divide among themselves that host of nervous diseases, derangements of digestive functions, and so many other affections without name, the result of the fatigues of fashionable life, commercial pursuits, or official duties.

The alimentary regimen of the various countries where invalids take the waters again is not a matter of indifference. If your stomach cannot bear oily and fatty seasoning, do not go to the South. But where are you to go for sulphurous baths, for there are none in the regions of good butter? Aix, in Savoy, is one of the best endowed localities in this respect, and where Parisian habits are least interfered with.

As to the manner of administering the baths, it varies, and becomes more perfect from day to day; our establishments have made great progress within the last few years. I like those where you find abundance of water, which removes all idea of fraud or parsimony; I like a temperature high enough to do away with all necessity of warming; and when the water, moreover, comes upon me by its natural fall and without interruption, the bath is perfection. Few establishments, however, combine all these advantages.

Néris and Bourbonne excel in water and temperature.

Mont-Dore is a model establishment.

The establishments of the Pyrénées, properly so called, generally abound in water, and temperature and arrangements are satisfactory.

The establishments of Ariège are progressing; those of the Eastern Pyrénées are ingeniously disposed.

In speaking of each station in particular I shall not disguise my preference for this or that. I shall endeavour to point out the resources and diversions each visitor may, according to his character, find in these different localities.

THE MINERAL WATERS OF THE PYRÉNÉES.

Balaruc.—The waters of Balaruc are saline and hot, and partake of the nature of sea-water.

They are purgative, and their exterior action is tonic and stimulating. When taken as drink, they purge or moderately excite the stomach, according to the dose ; as baths they energetically stimulate the skin and set the blood in motion, if you plunge into the basin of the source itself, where the temperature is fifteen degrees centigrade ; but as mitigated baths they invigorate muscular action, and are favourable to lymphatic complexions, in scrofulous affections, pains in the limbs, and in some cases, paralysis.

Great expenses have been incurred to restore the establishment of Balaruc, and re-invest it with its ancient splendour. Will the effort succeed ? It may be expected. Independently of their real qualities, the springs of Balaruc are favoured by the neighbourhood of the famous medical faculty of Montpellier : their prosperity is connected with that of the latter.

Like all southern districts near the sea, Balaruc presents in its neighbourhood no attractive sites or promenades ; it is not yet Camargue,¹ but something approaching it—large ponds of salt water, little vegetation, and level flats.

Lamalou.—The springs of Lamalou belong to the class of bicarbonate ferruginous waters ; moreover, *by an exception which is very rare in springs of this class, they are thermal*—that is to say, warm. This, in fact, is the feature that characterises Lamalou ; ferruginous waters are generally cold, whilst these have a temperature of thirty-five degrees—just the suitable point for

¹ See *Excursion in the Camargue*, pp. 90 and 94.

baths. One spring attains to forty-four degrees, which renders it fit for douches and being used for vapour baths.

As to medical properties, the following is the opinion of the authors of the '*Dictionnaire des Eaux minérales.*'¹

The therapeutic speciality of the springs of Lamalou applies exclusively to rheumatic pains, nervous diseases, including nervous paralysis, green sickness and life-endangering loss of blood. All authors that have written about these springs record remarkable instances of rapid cures of paralysis, in the etiology or pathogenesis of which rheumatism and prolonged debilitating causes play the chief part.

When I have added that the baths are administered under the direction of the excellent Dr. Privat, possessing consummate experience in these matters, and that the proprietor of the establishment every year introduces new improvements, it will be seen that Lamalou is neither a wild spot nor one wanting in essential qualities, and that invalids, even the most refined, may repair to it with full confidence.

Amélie-les-Bains.—These baths are in the valley of the Tech, and were formerly known by the name of baths of Arles, because of the small town of the same name situate in the neighbourhood, on the frontiers of Spain, and to which baths the name of the Queen of France was to bring good fortune.

The baths of Amélie feed two establishments, that of Dr. Hermabessière and that of Dr. Pujade.

The old-established baths of Dr. Hermabessière consist of a pretty dwelling-house and a fine thermal building, where sulphurous water abounds, and is distributed in baths, douches, vapour, and tanks.

Not far from these Dr. Pujade has drawn from the rock a dozen springs, which he has ingeniously distributed over the different parts of a new establishment. What distinguishes it is the presence of the mineral water on all the floors of the house, so that the bathing-chamber is often by the side of the invalid's

¹ Durand-Fardel, Lebreton, and Lefort, *Dictionnaire des Eaux minérales et de l'Hydrologie médicale.* Paris, 1860, vol. ii.

bedroom, and forms part of his set of rooms. He may bathe without leaving his own rooms, without going up or downstairs—an advantage of the greatest importance to helpless patients, who thus need not expose themselves to draughts. This is the only thermal establishment in which I have met with such an arrangement.

But wearied soldiers and patients find in the large establishment erected by the State, and for which it has purchased a portion of the superabundant water of Dr. Hermabessière, a remedy for their ailments, all the more efficacious since to the action of the hot and sulphurous springs is added the benefit of a southern climate, where winter is unknown. It was a noble thought to devote to our troops accustomed to the climate of Africa a thermal establishment, situated in the hot valley of the Tech, where aloes and pomegranates flourish, and which approaches the atmospheric conditions of the countries where our soldiers make war.

The baths of Amélie are situated at the foot of Canigou, the object of an interesting excursion that may be made in the same day.

Vernet.—The route from Perpignan to Vernet by way of Prades and Villefranche is delicious. I know the most cheerful valleys of the Pyrénées; there is none more cheerful than this. The summits of the mountains enclosing it are rather wanting in wood and verdure, owing to the right of common, which surrenders these heights to the tooth of cattle, and thus prevents the growth of timber. But the foot of these mountains, clothed with vines; those rocks covered with earth by the hand of the vine-grower, who plants a slip wherever he can bring and keep together a few handfuls of earth; the houses of the poor villages, grouped amphitheatrically, and opening like vast dens on the flanks of the mountain; and below the vigorous and luxuriant vegetation of the valley—all this, crowned by the snowy peaks of the Canigou, forms at each turning of the road so many pictures that affect the soul and supply matter for thought. The forts of Villefranche which hermetically close this passage of the Pyrénées, produce a very picturesque effect. When the

drawbridges of this small place, shut up within rocky and perpendicular walls, are raised, France is absolutely closed on that side ; it is like a good lock to a safe. The cross-fires of the forts, incrusting on each side on the rocks, or perched on their summits, would destroy an army attempting the passage.

One can form no idea of the streets of the villages through which one passes on going to Vernet. They are not streets, but chasms, to which there seems no outlet. Carriages were not thought of when they were constructed, and their poor inhabitants did not imagine that some day they would see equipages circulating in them ; and yet these narrow lanes with sharp turnings have been traversed by those of Ibrahim and the court which King Louis Philippe placed at the disposal of the illustrious invalid. One can scarcely understand how it was possible to get out of this labyrinth without slicing the corners of the houses off ; it was necessary to take the horses out of the travelling-carriages, and drag the latter on by sheer force of hands. But even at the present day these streets are furrowed night and day by diligences and the omnibuses of the thermal establishments. The drivers show extraordinary skill in not upsetting or entangling their vehicles.

In emerging from this defile the valley widens, and you perceive the establishments situated at the foot of the chasm which forms a circle around them. The first arrived at is that of M. Mercadet ; the second, situate a little further on in the midst of gardens and shrubberies which seem to form the background of this small valley, is that called the establishment of the Commandants. It was there Ibrahim Pacha was received and treated. This establishment, whose history is curious—almost romantic—presents new and interesting features to our observation.

First, who are the Commandants ? I cannot relate the history of Vernet without saying something of the men who almost founded and direct it. Well, the Commandants are in fact two retired officers, having both commanded the small town of Villefranche. After having honourably served their country, MM. Couderc and De Lacvivier, living together like brothers,

joining their property, purchased Vernet, to which they retired ; and employing the resources of their minds as well as their savings for the improvement of the establishment, they made of it all I shall presently describe to you—an establishment which is unique as regards its new and model conditions.

The partnership of these two brethren-in-arms was nearly disturbed for a while, not by discord, the most perfect unanimity having always existed between them, but by circumstances they had not foreseen.

Having put everything in common without a contract, and merely on their own word—which between military men is an engagement of honour—they did not think of what would happen after them ; the survivor was to inherit the property of the other. On this simple engagement they set to work, and though the spirit of enterprise be as yet little developed in that part of France, their intelligence and resolution inspired confidence, and the capital they wanted was offered to them by numerous friends. Hence arose rather complicated interests in the future, about which they would have troubled themselves but little as far as they were concerned. But an event they had not foreseen came about. They lived almost like bachelors, as they had no children, though one of them had long been married. When, behold ! one fine day—thanks being due to the virtue of the baths, or to one of the causes which the researches of Dr. Négrier, of Angers, have revealed to us—when behold ! I say, the wife of one of these gentlemen brought a fine child into the world, then a second, and lastly a third.

Hence, as may be conceived, a great complication in this hitherto simple partnership, and a difficult subject of reflection for one of the two partners. The conditions were no longer equal. The contract, founded on indifference to the future, disinherited the new family, and necessarily troubled the mind of one of the contracting parties. But is not everything easily arranged between old friends ? Did these brethren-in-arms not form one and the same family ? Were the children of the one not the children of the other ? Wherefore the convention as to the survivor could subsist, and was in fact maintained between

the old members and all the new-comers. The bachelor Commandant has indeed a poor chance of inheriting from the new generation, but what matters it to him? The association of Vernet is not a speculation; they live together, will die together, a little sooner or a little later, and that is all.

This point once definitively settled, nothing could stop the development to be given to Vernet. Inspired and encouraged by an illustrious professor of the faculty of Montpellier—Lallemand, member of the Institute—the Commandants resolved to transform the very incomplete establishment they had acquired. For this purpose one of them went to study the management and administration of the baths of Aix, in Savoy. He could not have gone to a better school. Aix, in Savoy, forms a model thermal establishment, perfectly appointed and managed. All a private gentleman can borrow from a royal establishment, the Commandant Couderc carried with him to Vernet.

We have no intention of comparing Vernet with Aix, nor with the large State establishments, such as those of Vichy, Nérès, Plombières, nor even with the communal establishments of Bagnères de Bigorre, Luchon, or Cauterets. In what we are about to say respecting Vernet, the reader must bear in mind that we are speaking of a private establishment, founded in a poor and backward country, with the means of two retired officers. Vernet is far from being what it might become in the hands of the State. The appointments are simple, but well adapted to the various morbid cases; the arrangements are ingenious, and the invalid there finds what is still wanting in our great thermal baths belonging to the State—a *vaporarium* constructed on the model of that of Aix.

What the private baths of our country are chiefly deficient in is the *personnel*, practised and intelligent bath and douche attendants. But how can this be made a reproach to Vernet and other private establishments, when even in our great national establishments, which ought to be bathing schools, this *personnel* is often found to be wanting? We must go as far as Savoy to meet with a beginning of a rational educational system on this point.

But what distinguishes Vernet is the system of warming the chambers. Taking advantage of the height at which the thermal waters issue from the rock, the water is made to circulate by means of pipes throughout all the rooms of the first and second floor. The warmth is thus distributed all over the house, and maintains a pleasant temperature around the invalids. And as the climate of Vernet is in itself very genial, as there is no winter in that happy region, the baths may be taken all the year round and the treatment continued, which, in less favoured localities, must be interrupted in winter. This is a great advantage for patients who seek restoration to health at watering-places.

Douches of every description, vapour and ordinary baths, are arranged at Vernet with more attention to the needs of the visitors than in many of our great establishments.

Wherefore the son of Mehemet Ali came to this place to be cured of a serious disorder. He was under the care of Dr. Lallemand, and underwent a delicate operation with a success which enabled him afterwards to pay a visit to Paris, and he returned home cured. The Pacha of Egypt had not been willing to entrust his son to other hands than those of a French surgeon.

The sojourn of Ibrahim Pacha at Vernet is not one of the least curious episodes of the history of this establishment. It is no slight affair to receive one of those absolute sovereigns, a stranger to our manners, and accustomed to meet with no opposition to his will—a kind of all-powerful spoilt child, surrounded by slaves always ready to obey the least sign, and gratify the most ridiculous fancies. It needed all the ascendancy of a character such as that of Lallemand to bend this unsubdued nature to the exigencies of a long and painful treatment. Ibrahim was not wanting in courage; he submitted to the operation without a complaint, but patience and moderation in his caprices were what he lacked.

In the midst of a host of barbarous actions, having regard to our manners, this rough soul yet at times betrayed sentiments of delicacy and goodness, which an European education would

have turned to account. Thus Ibrahim's usual rudeness to women occasionally was turned to refined gallantry, and in the best taste. Wishing to make a present to the ladies of the doctor's family, he one evening ordered the shawls which these ladies had deposited in the ante-room of his *salons* to be removed. When they were asked for, great was the astonishment not to find them ; the ladies began to grow anxious, when Ibrahim caused magnificent cashmeres to be thrown over their shoulders.

Sometimes he was so cross with his doctor that he would not speak to him ; but soon, urged by gratitude, he threw himself into his arms, thanking him for all the services he had rendered him.

The arrival of the Egyptian Prince at Vernet was invested with all the pomp it was possible to display at that place. He arrived in the evening ; his entire route was illuminated, and the mountains themselves were lighted up with bonfires.

Great expense had been incurred to instal the illustrious invalid ; a whole pavilion had been richly furnished, the lustres were giving forth their light, and the mistress of the house impatiently awaited the effect of the cares she had taken suitably to receive her guest. She asked one of his officers how he would express his satisfaction or dissatisfaction. 'If his Highness is satisfied,' replied the officer, 'he will say' (I have forgotten the words, but let us take the first come, it will not affect the subject), 'he will say, *Ama* ; and if he is dissatisfied, he will say, *Baïbi*.'

The Prince arrives at last, he is conducted to his apartments, throws himself on a sofa, and, with an air of bad humour, exclaims ten times in succession, *Baïbi* ! This word resounds cruelly in the ear of the poor lady. What had been done well to receive Ibrahim was precisely what annoyed him ; he was angry at all the splendour that had been displayed to receive him, and it was some time before he recovered from this first impression. He finally decided to admit the proprietors of the house and receive them, but the first reception was rough, and Lallemand, who was not patience itself, was on the point of sending his Highness to be cured elsewhere.

It was during Ibrahim's sojourn at Vernet that a catastrophe occurred which almost ruined the establishment. There was not then any kind of property less protected than mineral springs. Owing to the law, otherwise so just, which intends that everyone should be master on his own territory, the proprietor of the most valuable spring could any day be deprived of it, and see his water flowing through the land of his neighbour. This would have happened to the owners of Vernet, had not the decree of the Provisional Government come to their assistance, as well as at the same time to that of Vichy. But the matter was much more serious, much more exciting at Vernet than at Vichy.

At Vichy a landowner adjoining the springs belonging to the State makes experimental bores in his garden ; water rises in them which seems more or less produced at the expense of the spring of the establishment ; but, after all, nothing absolutely proves that a direct communication exists between the two sources, and to judge by the quality of this new water, it might even contain at least as much water from the Allier as mineral water properly so called. The State, perhaps, had no reason to be as much frightened as it was.

Besides, how are the precise limits within which it shall not be allowed to bore to be determined? At Vichy, wherever the earth is sounded, mineral waters rise up, whether people are excavating the foundations of a house or digging a well, and all these subterranean waters probably communicate with one another. Yet the building of a house or opening of a well cannot indefinitely be prohibited. The decree of the Provisional Government was nevertheless very wise in its clauses.

But the question never presented itself in so precise a manner as at Vernet.

The springs of the establishment of the Commandants do not rise from the side of the mountain, but flow from the rock which here forms a sort of thick wall. One side of this wall belongs to the Commandants ; that out of which the water flows to the other side is the property of their neighbour. Now this neighbour, by virtue of the law which allows him to enjoy

his land as he chooses, the conditions of not injuring others being entirely illusory as regards mineral waters, this neighbour one day took it into his head to open an enormous cutting in the rock, precisely in the direction of the adjoining springs. For more than six months the owners of the springs were condemned to hear the mines exploding, and the pickaxes working at destroying the rock that enclosed their treasure. No law protected them against this direct attack on their property ; their complaints and remonstrances were in vain. They were in the position of a man who, having his fortune in his bureau, hears the partition of his room being perforated, and expects every moment, and without power of resistance, to find his gold pieces roll into his neighbour's room. This moment arrived indeed for the Commandants. One evening they received the news that the water was rushing out at the other side, after a last blasting successfully directed. It was only too true that this water was theirs, for the levels of the basins quickly went down. Thus there was no more water to supply douches and baths, no more circulation of warmth in the rooms of the patients !

The position was cruel ; the establishment might be ruined, and the public might lose a powerful remedy for various diseases, since peculiar obligations prevented the neighbour from utilising the water he was turning on his territory.

It was at this critical point that the decree of the Provisional Government (decree of March 8 and 10, 1848) interfered—a decree which prohibits all exploitation of springs obtained by similar means in the vicinity of springs belonging to others.¹

Olette.—I did not wish to leave Vernet without visiting the splendid sources of boiling sulphurous water which rise in great abundance near Olette, from every part of a rocky wall on the edge of the torrent, and which remain there unemployed.

These waters, pointed out by J. Anglada,² have a tempera-

¹ See Durand-Fardel, *Dict. des Eaux minérales*. Paris, 1860, vol. p. 155, art 'Législation.'

² Anglada, *Eaux minérales sulfureuses*. Paris, 1827.

ture of not less than one hundred degrees; they are rich in sulphurous principles.

Let us now proceed to Ussat; the road which leads thither, as well as to Ax, follows the banks of the Ariège, passing through Tarascon. I might try to depict this truly splendid valley, surrounded by a belt of snowy mountains, and intersected here and there by hills of sugar-loaf form, producing the most original effects; but I fear to overdo description, and so hasten on to Ax.

Ax.—The small town of Ax, situate at the bottom of the valley of the Ariège, is a truly thermal locality; the sulphurous vapours escaping from every fissure impregnate the air with a sulphurous odour; the hot water leaps up at many points, and is at the discretion of the inhabitants, who employ it for all domestic purposes; they knead their bread with it and use it for washing; their bread is excellent and the linen beautifully white. It is a curious spectacle to see the women of the country perform their household operations at the boiling spring, whilst others wash in the public basin or bathe their legs in it. These people would no doubt be very much put out to live in a country where the springs yield only cold water; water is never heated in this locality, not even for shaving.

Ax, by its position, aspect, and the nature of its water, is the Luchon of this part of the Pyrénées, with natural features less grand and less picturesque, but with much more water.

Ax is remarkable by the abundance, variety, and temperature of its waters; there are no less than forty sulphurous springs of different degrees and forming a real thermal gamut, on which every sufferer may choose the note suited to his wants, the temperature being moderate in some and boiling in others.

Still it must not be supposed that this region is as necessitous as we Parisians might imagine from its remoteness and hitherto little known name. Ax possesses three thermal establishments; the one situated in the centre, near a fine promenade, is old and ruinous; the second, well placed for view, contains a goodly number of bathing and living rooms, which

only require to be made a little comfortable ; the third, connected with the fine hotel of M. Sierre, is elegant and complete.

The small town of Ax, well planted and kept in good order, boasts of fine and large hotels and furnished houses, in which you are well lodged and boarded at four francs a day.

There is, moreover, a charming little hospital, whose interior, however, does not correspond with the exterior ; but how is it that no large civil or military hospital has as yet been erected at Ax ? Is there a better locality than this on account of its abundance of springs, cheapness of living, and quietness enjoyed there for a large establishment of the kind ?

Beyond Ax there were until lately only footpaths to go on foot or horseback to Mérens, Puycerda, and the small republic of Andorre ; but now the beautiful road which comes from Toulouse rejoins the road of Olette, and thus the communication between the thermal baths of the Ariège and the Eastern Pyrénées is established.

Ussat.—The mineral waters of Ussat are situate a few leagues from Foix, on the banks of the Ariège, at the foot of an immense perpendicular rock and the ridge formed by the rolling down of its débris.

The new bathing establishment contains forty baths of white marble, in which the water gradually decreases in temperature from the highest to the lowest degree, and without any admixture of cold water. This is one of the great resources of the place, and it is turned to excellent account in nervous diseases.

The saline waters of Ussat are specially employed in female disorders ; adjoining the sulphurous baths of Ax, they assist them in moderating their stimulating action, or are themselves assisted in theirs by the latter. These sources, endowed with very distinct properties, naturally aid each other, and this is one of the advantages the assemblage of springs of various kinds in one locality presents to invalids.

Audinac.—Audinac is a pretty little establishment situate about two leagues from Saint-Girons, in the midst of an English garden, and in a smiling valley. This place is not for

travellers who seek afar the grand effects of nature, and for whom the use of mineral waters is often only an opportunity of giving rest to their weary minds. It offers to the patients of Ariège and adjoining departments beneficial waters and the pleasures of an easy life in a pretty country and within reach of a town.

The springs of Audinac are reckoned among thermal acidulated ferruginous waters.

These waters, at once tonic and slightly purgative, are very useful in a host of cases ; they owe to the union of these two properties the possibility of being persistently administered in complaints that need the use of iron, without producing the ordinary inconvenient effects of this substance ; they contain, in fact, in themselves the remedy for neutralising the effects of iron on the intestines ; and, on the other hand, their action, tonic as well as laxative, renders them invaluable in the treatment of certain disturbances of the digestive canals, in which the organs must, so to speak, be cleansed without being weakened.

The establishment possesses two abundant tepid springs, and consists of an elegant bathing-house, containing twelve baths and two douches.

Aulus.—Aulus is an establishment whose origin and development present some interesting features. It will eventually become the point of union between the springs of the Hautes-Pyrénées and those of the Eastern Pyrénées.

In 1823 a young lieutenant of a line regiment, commanding a detachment placed on the Spanish frontier, and long suffering from a disorder which no specific had been able to cure, was sadly wandering about the valley of the Aulus. Struck by the rusty tint of a rivulet, flowing in the midst of reeds and muddy banks, the idea struck him that the water might be endowed with medical qualities, and might perhaps benefit him. He had to brave the prejudice of the country, which asserted the water to be unwholesome on account of the toads and reptiles it seemed to attract, and which, in fact, it did attract because of its higher temperature in comparison with other rivulets in

the neighbourhood. The invalid tried the water, became better, and, as it is said, eventually recovered his health.

This fact spread over the district, and patients with the same disease came from all parts to drink the water of Aulus. The fame of the modest source, hidden amidst reeds at the bottom of a valley of the Pyrénées, extended, and the number of patients increased from year to year.

Soon, in fact, the quite peculiar properties of this spring seemed demonstrated, and the concourse of patients was so great, considering the resources of this poor locality, that it became necessary to build a few houses for the reception of strangers. The spring was surrounded by a stone enclosure, and gradually the only wooden bath then in existence there was transformed into a small establishment, very modest indeed, but having already ten bathing-closets. A bridge has been constructed on the stream which separates the spring from the commune of Aulus, the avenue planted with acacias, and hotels—real hotels—are now standing at the entrance of the village.

It is asserted that a horse, declared by the veterinary surgeons of Toulouse to have truly and actually been glandered, was cured by the use of the waters of Aulus. Now it is known, thanks to the labours of Rayer,¹ that glanders, beside the ravages they produce among horses, are one of the diseases which have the fatal privilege of transmitting themselves to man; they are always fatal to him and almost incurable in animals.

We are far from asserting that all that is reported of the specific qualities of the water of Aulus ought to be taken for fact. We are very reserved on the point, but it deserves examination. What may be stated positively concerning this spring is, that it is at once purgative, tonic, and stimulating.

As to its chemical composition, the analysis of MM. Filhol and Pinaud has demonstrated that it contains chlorides, sul-

¹ Rayer, 'De la Morve et du Farcin chez l'Homme' (*Mémoires de l'Académie de Médecine*). Paris, 1837, vol. vi. p. 625.

phates, magnesia, chalk, iron, free carbonic acid, and traces of copper and arsenic. Is it to this latter substance, so efficacious in certain skin-diseases and inveterate complaints, that the waters of Aulus owe the properties attributed to them? We cannot tell, but, at all events, the composition is not without its meaning.

Aulus is one of the valleys that seem on the borders of the habitable earth, or at least the enclosure of mountains that ends and envelopes it seems an insurmountable barrier. But what can men and animals not surmount? These mountains during the fine season are, in fact, peopled by shepherds and flocks in search of the succulent herbs of the high valleys; a very steep port, or pass, connects them with Spain; another conducts to the valley of Uston, the country of bears—there they are trained for the fairs of the country. Their training is the industrial pursuit of the inhabitants.

Bagnères du Luchon.—The springs of Luchon are eminently sulphurous, and have a very high temperature, too high even to be administered such as they issue from the rock (or *griffon* in technical language). The least warm, called *White Source*, is not less than 36 degrees centigrade, and is the only one in which one can bathe without catching cold; the others are 47, 52, 55, 59, and up to 67 degrees. These are, according to my examination, made while I was staying there, in corresponding order, the sources of the *Enceinte*, *Richard*, *Upper Grotto*, *Queen*, and *Bayen*.

The high temperature of the springs of Luchon is an inconvenience, for if it be desirable to have much heat, according to the axiom 'Who can more can less,' it is also necessary to have a good cooling system to apply these waters to the human body.

One of the conditions which give certain watering-places an advantage over Luchon, and to Bagnères in particular, is their possessing springs issuing from the earth at the degree suitable to our nature and always alike.

As to the degree of sulphurousness, it varies in the different springs of Luchon in the proportion of three to seven, and thus presents the greatest resources for the treatment of divers dis-

eases. This measurement of the quantity of sulphur, which was so long and delicate a process according to ancient chemical methods, is mere play now that M. Dupasquier, professor of chemistry at Lyons, has made known his ingenious method.¹ This procedure, which enables us to measure immediately the quantity of sulphur contained in sulphurous waters, and to compare one spring with another, is founded on the property possessed by iodine of combining on the one hand with sulphur, and, on the other, of turning starch blue when, on the completion of the operation, all the sulphur has been absorbed by the iodine. Do we want to know how much sulphur a certain water contains? It suffices to have an alcoholic solution, tintured with iodine, and to pour some of the solution into the sulphurous water previously mixed with a small quantity of starch. As long as there is any sulphur in the water it absorbs the iodine, and the starch does not turn blue; but as soon as the last particles of sulphur have combined with the iodine, the property of this latter to turn starch blue appears, and at this stage the operation must be stayed. The quantity of iodine solution employed to saturate the sulphur indicates the proportion of this latter ingredient contained in the water. It is thus that of the different sources of Luchon the one called White Source required two, the Enceinte three, the Queen five, and Bayen seven degrees of iodine. By means of the calculation indicated by M. Dupasquier it is easy to derive from these figures the quantity of sulphur contained in each of the springs.

Now in what state, under what form, in what kind of combination is sulphur found in sulphurous water? This is a point on which the opinions of the most skilful chemists are not yet agreed, nor shall we discuss the point.

There is a great work to be accomplished concerning thermal springs in general, and especially concerning the important group of the Pyrénées—the analysis and exact gauging of all those springs. This has already been done, I shall be told,

¹ A. Dupasquier, *Mémoire sur la Construction et l'Emploi du Sulfhydromètre*. Paris, 1861.

and by men of merit and authority in these matters. The analysis of J. Anglada,¹ those of the members of the Academy of Medical Science,² specially charged with the investigation of mineral waters, and particularly the labours of J. P. A. Fontan,³ to whom we are indebted for useful researches on mineral springs in general, and those of the Pyrénées in particular—these are invaluable documents. But, on the one hand, science progresses, and, on the other, the analyses are not complete, and devoid of the official character of a work undertaken by order of Government. Every analysis carried on at a distance from the springs themselves, even with water sent with all possible precautions, is incomplete and often useless, and must be so in a higher degree with residues of evaporation.

It is understood that the Luchon springs are naturally sulphurous, like most of the springs of the Pyrénées—that is to say, they combine with sulphur in the depths of the earth, whence they proceed, and not by encountering organic matters in decomposition, as happens with certain springs called ‘accidental,’ like those of Enghien for instance. This, already distinctly pointed out by Orfila,⁴ was fully established by Fontan.

Another question, more important as regards the art and application, is whether sulphur is the sole therapeutic agent of sulphurous waters; whether to this principle alone is to be attributed the efficacy of these springs in diseases; whether, in a word, their action can be explained by the presence of sulphur only.

We refer the reader to what we have already stated on this

¹ J. Anglada, *Mémoires pour servir à l'Histoire générale des Eaux minérales sulfureuses et des Eaux thermales* (Paris, 1827–33, 2 vols. 8vo.); and *Traité des Eaux minérales et des Établissements thermaux des Pyrénées orientales* (Paris, 1833).

² *Bulletin de l'Académie de Médecine*. Paris, 1836–69, vols. i. to xxxiv.; *passim*. This publication is the official collection wherein are published the analyses of waters made by fellows of the Academy, at the request of the Minister of Agriculture, who desires to ascertain and settle the properties of springs before they are declared publicly useful.

³ Fontan, *Recherches sur les Eaux minérales des Pyrénées*. Paris, 1853.

⁴ Orfila, *Mémoires sur les Eaux de Caunterets*. 1834.

question in the examination of the *modus operandi* of these springs.¹

The diseases treated at Luchon are especially old-standing rheumatic pains, catarrhal affections of the mucous membranes, lymphatic and scrofulous disorders, skin-diseases, and paralysis.

It would require repeated and prolonged visits to watch the patients and pronounce an opinion on the results of the treatment ; wherefore I am not in a position to discuss this question, but leave it to the local physicians to acquaint us with the results of their practice.

Bagnères de Bigorre.—If we go from Luchon to Bigorre, we shall see places of a different aspect, and invalids of quite another kind. Bagnères de Bigorre is the cleanest and prettiest town you can imagine ; all around is graceful ; its open valley is diversified with green meadows, watered, like the town itself, by a number of small canals drawn from the Adour, which renders them very fertile. Hugging on one side the plain of Tarbes, you arrive at Bigorre directly and without crossing the narrow and steep gorges which give access to the valleys buried in the depths of the mountains, such as the valleys of Luchon, Barèges, Cauterets, or Eaux-Chaudes. Being less elevated than these latter, the temperature is milder, and one only just catches a glimpse of the snow on the more advanced peaks of the Pyrénées. Bagnères de Bigorre seems to repose in the centre of a park which extends as far as the famous valley of the Campan, and whose horizon is bounded by the first terrace of the Pyrénées. Wherefore, also, there are no wild sites around the town, but everywhere delightful promenades, planted with clumps of trees, disposed as by the hand of an artist to adorn the view and charm the eye.

This landscape is perfectly in keeping with the properties of these springs. Here there are no longer sulphurous waters destined for serious diseases and the most saddening infirmities of human nature. The saline sources of Bigorre suit exhausted temperaments, nervous women suffering from green-sickness or

¹ See *ante*, p. 130.

worn out by the excitement of fashionable life. This spot invites delicate or languid constitutions, or such as have been unduly stimulated by moral impressions or excesses of the nervous system. Everything here tends to rest these worn-out organisations, to calm nervous agitation, to refresh mind and body, and even to console the heart when it is inaccessible to the gentle beauties of nature. The graduated use of these unctuous, tonic, and slightly stimulating waters dissipates vapours, drives away spleen, this cruel disorder of the soul, by re-invigorating the digestive powers and bracing up the bowels.

It is difficult to resist the genial influence of the springs of Toulon and Salut, which are reached by an avenue in the English style, and whose waters fall without stopping—the conduits are without taps—into vast marble baths.

Actual and positive complaints, prosaic affections, such as rheumatism of long standing or enlargement of the liver, find great relief in the waters of varied strength and temperature, which well up in great abundance from the soil of Bigorre.

The thermal establishment is remarkable for the luxuriousness of its construction—all in marble—for its interior arrangements and private baths.

Barèges.—What a contrast between Bigorre and Barèges ! Here again what harmony between the aspect of the place and the remedies it offers to suffering humanity ! How seriously ill one must be to come to this dismal and cold place, in this narrow and barren gorge, ravaged by avalanches and torrents, darkened by fogs, and which wolves only can inhabit during six months of the year !

Indeed, the waters of Barèges are the last resource of invalids racked by pain, whose limbs are paralysed by infirmities contracted in war, by ancient wounds no other remedy can close, and by the most hideous kinds of the countless family of cutaneous diseases. Wherefore the waters of Barèges also do not belong to France alone ; they are the waters of the whole world, and invalids from the most distant quarters of the globe visit them. The infirm and the lame are met with at every turn, and day and night the greatest activity reigns in the baths

How many poor creatures that dare not show themselves go to and fro in the close litters seen in all directions, to visit the salutary springs, whence they expect new life ! How many mysteries are shut up in those chairs one sees passing by, full of unknown pains !

No one visits Barèges for his pleasure, or if by chance some inquisitive traveller reaches it in joyous humour, how soon this disposition is repressed by the sight of the grey greatcoats of the patients of the military hospital, which so sadly agree with the dismal aspect of the naked and rent ravines and flanks of the mountains !

And yet people amuse themselves at Barèges ; they meet, play, and dance. What may be the physiognomy of these balls, and by what dancers are they attended ?

I cannot tell you from personal experience, but Parisian ladies, who are judges, have assured me that the balls were very gay and animated. Is not this one of the miracles commonly attributed to the baths of Barèges ?

The springs of Barèges present the twofold advantage of possessing great virtues by their composition, and of issuing from the earth at various temperatures, all adapted to the human organisation. The coolest does not go below twenty-eight degrees, the hottest does not rise above forty-four. Between these two extremes nature has ranged all the intermediate degrees, so that the waters are here taken as they spring from the rock, without the necessity of warming or cooling them according to the immediate object.

Cauterets.—Cauterets is an important town, full of life and frequented by a large number of bathers. Sulphurous springs, plentiful, numerous, and varying in strength and temperature, justify this selection. There are, in fact, at Cauterets springs for every degree of illness in which sulphurous water is beneficial ; there are no less than ten. The most important are that of the *Espagnols*, which stands at forty-eight degrees, and that of *Raillière*, which indicates thirty-eight degrees.

These two springs supply two well-appointed establishments, but of which one especially—that of the *Espagnols* (Spaniards)

—is perfect. Formerly perched in an out-of-the-way place, difficult of access, it now rises in the centre of Cauterets, within reach of all patients, and combines in baths and douches all that is necessary for comfort and the treatment of various complaints. Here at last I had the satisfaction of meeting with spacious entrance-halls, elegant and comfortable private baths, divided into two compartments, and douches of every kind and degree of strength, which can be regulated at will.

Eaux-Bonnes.—Since physicians have attained to the conviction that it is not necessary to wait until patients are at the last stage of disease to send them to Eaux-Bonnes—that, on the contrary, they ought to be sent there at first—the efficacy of these springs in chest affections and against the earliest attacks of consumption has been put beyond doubt, and the numerous cures effected every year justify the immense popularity the physicians of Paris have conferred on them.

It is at Eaux-Bonnes that the most elegant society of the Pyrénées is to be met with.

The medical course of Eaux-Bonnes is easy enough; to ascertain the state of the chest and the degree to which the lungs are affected; to send away patients in too advanced a stage of disease, whom the treatment would only kill all the sooner, and who would uselessly compromise the reputation of the baths; to keep the others and make them drink every morning some glasses of sulphur-water, according to their strength and nervous susceptibility—such is about the general practice at Eaux-Bonnes.

The thermal establishment, an elegant building, cannot fail to answer for so simple a treatment; it consists merely of a drinking pavilion, where everyone comes at his own time to draw some water; the baths are a mere accessory of little account.

Bonnes has been greatly improved and beautified of late years, thanks to the money spent there by a number of rich patients, and the intelligent zeal of some grateful persons, who have bequeathed to it a promenade invaluable to invalids with short breaths; the level road, made by Counts de Kergorlay

and Dulong de Rosnay and MM. Deville and Moreau, is a veritable monument, which deserves the gratitude of invalids. The promenades Grammont and Jacqueminot have also their value for persons to whom the use of the waters has restored a freer respiration and strength to ascend the mountain.

Cambo.—At this place there is an accidental sulphurous spring of the nature of that of Enghien, and a ferruginous spring.

The establishment of Cambo is very much frequented by the inhabitants of Bayonne, who are drawn thither not only by the properties of the springs, which have all the properties of sulphurous and ferruginous waters, but also by the attractions of the country.

Cambo is situated in one of the most charming valleys of the Basque country, on the banks of the Nive, which may be descended in boats, as far as the town of Ustaritz, by passing over seven or eight cascades, over which the sailors of the district launch their boats with astonishing dexterity. This promenade of the *nasses*, as it is called, is one of the most interesting to be made when the water is high. It was at Cambo I for the first time saw the *cacolet*, which is going out of use with us, as roads are improved, but is still patronised in the Spanish Basque provinces. It is, in my opinion, a delicious mode of travelling; I like these couples of men and women suspended by the sides of a mule, who indulge in conversation whilst they are being carried along. I regret that the good condition of our highways allows of our going everywhere in carriages, and that the *cacolets*, whose effect agrees so well with the picturesqueness of the mountains, are being abandoned. I wish some aristocratic ladies would fancy to introduce them at Paris in the Bois de Boulogne, and am sure that, with a good horse, beautiful caparison, and the skill some amazons would display in guiding them, they would be a success.

*MINERAL WATERS OF PROVENCE AND
DAUPHINÉ.*

Gréoulx.—Gréoulx is at a short distance from Aix and Marseilles, but particularly close to Hyères, and one could reach it in a day, in spite of the mountains that must be crossed, if communication by way of Barjols were regularly established. I point out this vicinity because these two medicinal localities seem to me to be connected with one another by certain ties, and destined mutually to assist each other. Gréoulx, in my opinion, might be the *Bonnes* of the invalids who repair to Hyères to finish the winter and breathe a milder air.

The constitution of the waters of Gréoulx is analogous with that of the celebrated spring of the Pyrénées; they are sulphurous like Eaux-Bonnes, contain salts of the same nature, a strong proportion of chloride of sodium, and an unctuous organic matter; the one and the other produce a certain degree of excitement, which is tempered by qualifying them with milk or syrup; they suit lymphatic temperaments, children, and weak young girls, and only become purgative in strong doses.

Here are many points of contact; but what difference is there in the conditions of the climate?

The one is situate in a gorge of mountains, covered with snow, delightful in summer, but inaccessible during three parts of the year; the other is in open Provence, in the centre of a warm champaign country, where the olive grows and winter is unknown.

A hot sulphurous spring is not a common thing in an open country and far from snow; almost all the springs charged with sulphur issue from the earth at the foot of glaciers; to reach them it is necessary to ascend mountains and expose

oneself to the reactions of the stern and trying nature that surrounds them. Here, on the contrary, at Gréoulx, what a climate, what a sky, what a mild atmosphere at night ! No sudden lowering of the temperature, and no cold dampness falls upon you at the going down of the sun. Here is a region, a climate made for torpid and lymphatic constitutions, delicate chests, diseased lungs, and fit for them during half the year. I am surprised they are not sent thither, as well as patients suffering from pains and rheumatism ; a season at Gréoulx would often be the complement of a winter spent at Hyères.

The spring and the establishment are situate in the centre of beautiful shade ; from your room you go to your bath, douche, and drinking-well without leaving the building. The water is so abundant as to flow without interruption into the baths ; night and day the taps remain open—in fact, there are none. A deafening noise of water greets your ear. The baths, therefore, are taken in running water ; every bath is a kind of tank, where the water, constantly renewed, preserves a constant temperature and allows of an indefinitely prolonged stay. Gréoulx is one of the privileged springs, furnishing an inexhaustible supply, at a temperature precisely *en rapport* with that of the body, needing neither heating nor cooling. The water, moreover, has a natural fall dispensing with pumps and reservoirs. By comparison with establishments in contrary conditions, we know the trouble and expense involved to effect imperfectly what nature so liberally lavishes elsewhere. The proprietors of Gréoulx only had to construct a steam-apparatus to raise the temperature of the hot baths. Supplied as they are with superabundant water, they would do well to dig a handsome basin in which invalids and children might practise swimming. They cannot do less after having brought into their park flowing water, which seems to announce their intention of giving to their establishment all the development of which it is capable.

Without being a place of amusement Gréoulx is a pleasant residence. Baths, an assembly-room, reading-room, cafés, billiard-room, and out of doors picturesque sites, shady walks, and the promenade along the banks of the Verdon—is this not

enough for real patients who seriously go to the baths for the recovery of their health?

Digne.—Half a league from Digne is another mineral source, analogous with that of Gréoulx, but hotter, richer in sulphurous principles, and more active.

The analogy does not extend to the establishment, though both, it is said, belong to the same proprietor. This latter is of the plainest and most primitive, nay, the most barbarous description. Grottoes, or rather obscure caves, cut in the rock, from whose vault the water falls through a natural fissure, serve as baths and douches. What do they talk in books of the height of douches and of the quantity of water regulated at will? Art does not go so far as Digne; you descend into a den into which the light can scarcely penetrate, and, after having rubbed your eyes, you perceive on the ground moving bodies like those of reptiles. These bodies turn and turn again to expose to the falling water their affected limbs, their swelled or rigid joints—these are the bathers. The private baths and dwelling-house placed against the rock are worthy of these dens and subterranean baths in the rock itself. I only looked in, and felt no desire to penetrate deeper into them.

To say what water there is at Digne is impossible; it issues at several points from the rock, and no one has ever taken the pains to collect and measure it. I believe it is abundant, and its virtues have been demonstrated by experience and analysis.

One cannot understand why a source so interesting in itself, situate within reach of the chief town of a department, and on the bank of a stream adorned with trees, which forms one of the promenades of the town, did not become the property of the town or department. This spring, which might, perhaps, become for Digne what the waters of Aix, in Savoy, are to the town possessing them, has been left in a state of neglect, abandoned, as it were, in an inaccessible part of the mountains, whilst often the greatest efforts have been made to get at such as were concealed. We shall presently see a fine instance of this.

Lamotte-les-Bains.—Four leagues from Grenoble, in the

centre of a wild district, at the bottom of a profound ravine on the banks of the Drac, a formidable torrent, into which falls a cascade comparable with some of the finest in Switzerland, there rises up a hot spring of a high temperature, very abundant, and analogous in its chemical composition to sea-water.

Were it possible in this place to erect a thermal establishment, it would undoubtedly be the richest in therapeutic resources—the one that would most amply dispose of those powerful modifiers found in waters charged with salt and heat. But how is it possible to find room for buildings in this chasm? The rock descends perpendicularly on both sides of the torrent; and how is it practicable to settle down beside this torrent, which, suddenly swelling by the melting of the snow, rises several mètres, impetuously bringing down huge rocks torn from the flanks of the mountain? There is no room, and, except we overthrow the gigantic walls that enclose the torrent and the spring by blasting, or throw a bridge extending from one height to the other over the torrent itself, on which the foundations of a building might be laid, there is no means of settling down there. And what would become of the patients compelled to live at the bottom of this chasm, which the sun never reaches except when right over our heads, between these two walls which only show a narrow strip of sky? There are, indeed, a few poor establishments existing here and there under similar conditions. I remember seeing one in the Eastern Pyrénées, which appeared to us, a few hundred feet below us, as if we were looking at it through the wrong end of a telescope. But the patients of the present day are more delicate than formerly, and would hardly put up with such accommodation.

And yet the Romans did not shrink back from this redoubtable site. Quite at the bottom of this precipice there are vestiges of those indestructible constructions one is sure of encountering wherever there is a mineral spring, and which attest the passion of that people for bathing, and their faith in the virtues of these mysterious waters elaborated in the bosom of the earth.

What have the moderns done to utilise these beneficent

waters? For centuries people went to draw them at the source and carry them on the backs of mules to the neighbouring village. This being still the practice a few years ago, such was the only means of obtaining the water of Lamotte. But its fame was so great, its efficacy so well established in public opinion, that no difficulty was taken into account.

One step more has been taken—a gigantic step, as we shall see, and which demanded great resolution, a kind of fierce determination. One kilomètre from the spring, and two or three hundred mètres above it, there is an isolated hill on which one saw the ruins of a castle, an ancient domain of the Morges family. A company undertook to carry the waters there. The castle was first rebuilt and fitted up as a bathing establishment. A large reservoir was constructed, and below that closets for douches, baths, and sweating.

A simple but powerful hydraulic machine pumps the water from the spring into cast-iron pipes up to a height of two hundred feet. The motive power is the water of the cascade, which falls from a less elevated point, but whose volume makes up for want of height. This water directly enters horizontal pumps, works the pistons, and by the same movement draws up the mineral water; this, acting in its turn on the other side of the pistons, pushes them in the opposite direction; a valve suddenly cuts off the motive water, allowing it to escape, and the pistons, driven back by the mineral water, return; a fresh effort and a fresh movement of the motive water produce a fresh action of the pistons, which forces the mineral water into the ascending pipe. Thus, by the opposite efforts of these masses of water, and the alternate play of the machine, the mineral water, always urged from behind, rises to a height of nine hundred feet by means of the ascending pipes which, like a huge serpent, cling to the side of the rock. On its arrival at that elevation, which commands the thermal establishment, it enters a canal, which, by a natural fall, conducts it into the reservoir. The machine, therefore, represents a kind of heart, whose contractions, on the one hand, draw up the natural, and, on the other, send forth the mineral water; the pipes of

cold water represent the veins, and the pipes of hot water the arteries, of this heart formed by the pumps; the establishment is the body of this vast apparatus for whose benefit the circulation is maintained.

But in this long passage, no less than 1,900 mètres long, how much water and heat are lost! The water, which at the source has a temperature of sixty degrees, in the building has only thirty-three or thirty-four; this temperature, high enough for bathing, is not sufficient for douches and sweating; the water must, therefore, be heated again, and for this purpose a 'worm' is employed, which causes steam to circulate in one of the reservoirs. Besides the regret one feels at this additional expense, what livelier regret does one not experience to see so much natural caloric lost, and so much water which never reaches its destination. How much we envy the fortunate conditions of those springs whose waters reach us with their natural temperature and by natural means! How many expensive machines, liable to accidents, how many hands employed, and how much costly labour in establishments that are forced to raise and heat their own water! But in none is there seen anything comparable to this machine working at the bottom of a frightful precipice, drawing its waters from that depth, raising it to a height of three hundred mètres, and carrying it a distance of two kilomètres.

Well, this is not all. The waters must now be sent from Lamotte to Grenoble.

These waters, then, are very valuable? They enjoy, indeed, great fame throughout Dauphiné; their reputation is well established in public and scientific opinion. People come from all that ancient province and surrounding departments to seek there a remedy for rheumatism and pains in the limbs, for the consequences of dislocations and fractures, wounds in bones and ulcers, for scrofula, skin-diseases, certain kinds of paralysis, &c.

In the absence of amusements the baths of Lamotte present curious and picturesque sites. The mines of anthracite, which penetrate far into the mountains, are worthy of a visit; there

are inaccessible rocks for the lovers of ascents and hazardous enterprises. The ravine, cascade, and machine itself are sights that deserve the attention of the admirers of contrasts and the beautiful horrors of nature.

Uriage.—We must now enter the domain of a rich gentleman, whose passion, self-gratification, and history consist in the thermal establishment situate at the foot of his château.

The heir of this domain, M. de Saint-Ferriol, is not the founder of the establishment ; it existed before him, but he turned a plain cottage into a bath rivalling those of the State ; every day he enlarges, improves, and embellishes the baths, dwellings, gardens, promenades, and roads, for M. de Saint-Ferriol is a man of taste, an artist who is fortunate enough to be rich. It is said he has already spent 2,000,000 francs (80,000*l.*) on the establishment of Uriage. His château, in a Gothic and original style, is at the top of a small hill rising in the centre of one of those smiling and fertile valleys of the Isère ; it is a museum, containing in its Gothic halls the art products of different stages of civilisation and several centuries. The baths are at the foot of this hillock, and form the view of the castle, as the castle forms their view. The valley, surrounded with fine mountains, still covered with snow in the spring, but which in a few days will be enamelled with flowers and dotted with flocks, extends as far as Vizille, famous for the provincial States-Assembly, where were proclaimed the principles which were soon after to be echoed in the Riding-House of Versailles.

You reach Uriage by a charming road ; at one league's distance from Grenoble this road turns aside to burrow among the windings of the mountains, in which small delightful valleys lie concealed. In one hour you reach the establishment ; omnibuses are constantly travelling to and fro.

Uriage is a very lively place ; besides the numerous bathers residing there, it forms the goal of a promenade for the inhabitants of Grenoble. People from the town also go there to take plain baths.

After the salons of Vichy and those of German watering-

places, that of Uriage is one of the most beautiful; crowded parties and balls are held there, and Grenoble, in case of need, furnishes dancers.

The waters of Uriage are at once saline and sulphurous; they contain as much as fourteen grammes (gramme= $15\frac{1}{2}$ English grains) of salt of calcium, soda and magnesia, and ten cubic centimètres of acid sulphydric gas in a litre.

The water is stimulating, acting on the skin and intestines; in certain doses it is purgative; its action is usefully employed as a preventive remedy, and its use particularly recommended in chronic skin-disease; this is, so to speak, its speciality. But Dr. Gerdy has also advantageously employed it in many other affections, such as scrofula, spinal diseases, rheumatism, &c.

The low temperature of this water,—twenty-seven degrees centigrade—entails the necessity of heating it for baths and douches. It appears that even the Romans employed it thus, for Roman remains for heating have, it is said, been discovered; the only instance of this kind hitherto known.

M. de Saint-Ferriol has spared no expense for the constant supply of the water. It is brought from the heart of the mountain through a gallery 300 mètres long. The arrangement of the douches, steam and Russian baths, recalls that of the baths of Nérès.

To attempt speaking of the excursions of Uriage would be attempting the description of the wonders of Dauphiné. It suffices to say that travellers go for mountains and picturesque sites all the way to Switzerland, whilst they might as well stop at Grenoble. Switzerland offers few more curious sites than the department of the Isère. The road alone from Jap to Grenoble deserves a visit. The French Alps are much less known than the Swiss Alps, and it would be something fresh to explore them. We shall say a few words on this in speaking of the baths of Allevard.

Allevard.—Allevard is better known to artists, geologists, and metallurgists than to the frequenters of mineral baths; its mines of carbonated iron, producing the best French iron, its foundry and landscapes, have long been explored, but its spring

is of recent date ; it was unknown forty years ago, and ran to waste in the torrent of the Bréda.

The mineral water of Allevard is sulphurous and rather cold, richer in sulphurous ingredients than that of Uriage, but containing less salt. It has therefore to be heated for douche and vapour baths.

It is beneficial in rheumatic complaints, skin-diseases, and other circumstances, which M. Nièpce, the resident inspecting physician, has carefully described, indicating at the same time the rules to be followed during the treatment.

The water is conducted at some distance from the spring into a beautiful thermal establishment, pleasantly situated in the midst of a garden, where there is also a comfortable hotel.

The frequenters of Allevard are numerous. People come hither not only for sulphur-baths, but the whey-baths, which M. Nièpce has established on the model of those of Switzerland, and happily combines with the use of mineral water in the treatment of nervous and catarrhal affections. The whey is brought every morning from the mountain on the backs of mules by the cheese-making shepherds.

The situation of Allevard is beautiful, and all its environs are truly delightful. The road leading to it from Grenoble through the valley of the Grésivaudan presents all that is most attractive in the contrast of mountains and profound valleys of fertile vegetation at the foot of rocks and snow-capped peaks. In descending from Allevard on the side of Savoy the view is still more wonderful. Some hundreds of feet below the road lies a splendid valley, dotted with villages, with their tin-covered spires glittering in the sun ; a hill, covered with the richest verdure, rises in the centre of this valley like a sugar-loaf, casting a long shadow ; the horizon is bounded by high mountains covered with eternal snow. When this valley, this verdure, these rocks, and this snow are inundated with the slanting rays of the setting sun the effect is admirable ; it strikes not only the eye, but penetrates the heart and elevates the soul.

It takes about five hours to go from Grenoble to Allevard ; the road follows the Isère for half the distance, and then ascends

the mountain to the right. Allevard is at the entrance of a narrow gorge, at whose bottom is heard at one and the same time the roar of the wildly-rushing torrent and the hammers and forges of M. Charrière's foundry. These iron-works, where the mineral is seen to pass successively into the state of cast and wrought iron and steel, and to assume under the tilt-hammers and in the rolling-mills all the forms needed for industrial purposes, are not the least curiosity of Allevard. These glowing furnaces, machines, turbines, bellows, heavy hammers, set in motion with a prodigious force by the fall of the torrent, in such a spot, near the cascade of the Bout du Monde produce a striking effect ; all these various noises stun you. But this kind of precipice is very different from that of Lamotte ; here the rocky sides of the mountains are covered with verdure ; from their base to their summit vigorous pines issue from their fissures.

A few steps from the foundry, in the centre of a grove your glance cannot pierce at once, is the elegant dwelling of M. Charrière, a true Parisian house in the centre of an English garden, whose scenic effects are formed by a torrent and natural rocks. Nothing is less wild than the interior of this house ; a tastefully adorned drawing-room, a picture-gallery serving as billiard-room—nothing is wanting to make you forget that you are at the end of the world ; and, in fact, M. Charrière spends the whole year, winter included, without ennui, surrounded by his family, in this more than rustic locality.

The thermal establishment is in the widest part of the valley ; the sun in the middle of the day floods the garden with light, but early conceals itself behind the mountain, and you must carefully protect yourself from the cold which comes down from the heights and ascends from the frozen river.

Among the excursions made from Allevard there is one of a new kind I am very sorry I was not able to undertake. I do not mean that to the Devil's Bridge, nor that to the High Bridge (*Ponthaut*), nor that to the Seven Lakes, said to be very beautiful, nor even that to the castle of Bayard, but that to the mountain you descend on a sledge. It takes three hours to ascend the mountain on horseback ; on a sledge you descend

in ten minutes. This promenade seems to me very exciting, and I should have liked to have tried this Russian hill of a new kind.

Aix in Provence.—In their passion for mineral waters the Romans, unenlightened by chemical science, consulted merely instinct and experience. But this instinct was undoubtedly unerring enough, for we resort to the present day to the springs they frequented. It was not the exact proportion of salt or sulphur that decided their choice; the importance of their buildings demonstrates that they followed other rules. They erected two considerable baths at Aix in Provence and Aix in Savoy, two springs which are not rich in what we call ‘mineralising principles.’

The water of Aix in Provence especially is not at all sulphurous: it only contains traces of some salts, but it is abundant. Its heat on issuing from the earth is *en rapport* with that of the body, and the water is mild and unctuous to the skin. No doubt no more was needed to cause its adoption by the conquerors of Gaul. These sources still exist, and their qualities are not changed, and yet Aix is not a thermal station much frequented at the present day. The fact is, our way of taking the baths is very different from that of the Romans. With them it was an important affair, in which the composition of the water was the last thing taken into consideration. Their procedure was as follows: The bather deposited his clothes in a kind of dressing-room called the *apodypterium*; thence he entered another apartment, the *unctuarium*, where the slaves anointed him with perfumed oil. He thence passed into the gymnasium, and, after having performed several exercises, plunged, whilst his body was in a state of intense perspiration, into one of the vast tanks of the *calidarium*, whose water was maintained at a high temperature. There he was brushed, or rather scraped with a metal or ivory blade, called *strigilis*. By the side of the hot bath was the moist chamber, the *tepidarium*, which he, as it were, only crossed to reach the *frigidarium*, an immense basin of cold water, where he could indulge in swimming. This bath was preceded and followed by frictions. On leaving the bath the slaves wrapped the bather up in a soft cover called a *sindon*, wiped him care-

fully with linen and sponges, perfumed him with precious essences, and finally carried him back to the *apodypterium*, where he dressed himself again. Other times introduce another mode of bathing. Here was a complete bath, such as we moderns have no opportunity of enjoying.¹

What the Romans expected from gymnastics we expect from the chemical virtues of water, and this is why Aix, this grand ancient bath, to which no doubt patients repaired from distant parts of the empire, is now only a pleasant bath, frequented by the inhabitants of the district and its environs. But it is not an establishment to be despised. The abundance of its water, its temperature, unctuous property, and facility of access during the whole year, in a convenient spot under a beautiful sky, are invaluable advantages to patients whose shattered nerves demand a mild and composing water, and who can neither wait nor go far.

It is asserted that the town of Aix intends to enlarge and improve the bathing establishment. Great projects are said to be in hand for replacing the present building by vast structures in which the bathers are to find at once all varieties of baths, douches, tanks, and vapour-baths, comfortable accommodation, and gardens.

The springs of Aix are worth the execution of such a plan ; they might, so to speak, be rendered universal by artificially imparting to them the properties of active mineral waters ; they would be very suitable for such admixtures with the principles of other springs, such as is the practice in Germany. Let there be at Aix, as at Baden, a *dépôt* of the chief mineral waters of all Europe, salts already prepared to procure at will an alkaline or sulphur bath, the mother-waters of the neighbouring salt-pits, as is done at Homburg, and we might expect, not the brilliant destiny of the establishments enriched at once by their green cloth and the beautiful landscapes that surround them, but a prosperity proportionate with the increase of therapeutic resources.

¹ The author forgets the Turkish Bath, now in such common use.—*Transl.*

MINERAL WATERS OF CORSICA.

CORSICA is rich in mineral waters of different kinds ; hot and cold sulphur springs in every degree of sulphurisation, alkaline springs, ferruginous and gaseous springs ; here are powerful therapeutic elements. Add to these sea-baths, the splendid beach of Ajaccio and its perpetual summer, and you will have an idea of the medical resources of the country. Is it necessary, I repeat, to seek in foreign countries the benefits of a southern clime, of sea and mineral waters, when we possess them all united in one French department ? Assuredly Ajaccio is better than Pisa, and Corsica is a more exciting country for minds that are *blasés* than Piedmont or Tuscany.

I shall begin my examination of the mineral springs of Corsica with those that exist on the hither side (with respect to France) of the mountains, and finish with those on the eastern coast.

Guagno.—The springs of Guagno are fifteen leagues from Ajaccio, and two leagues from Vico, one of the ancient bishoprics of Corsica. Vico is very prettily situated, and Guagno has a civil and a military establishment. Both are frequented during the season, Government sending thither soldiers of our African army on the sick list, and the inhabitants of the island coming from different parts there to find a cure for their various complaints.

The springs of Guagno, being sulphurous, are especially suited to skin-diseases, chronic pains, rheumatism, stiffness in the joints arising from wounds or a scrofulous habit. Their temperature is very high—fifty-one degrees centigrade—and the supply is very abundant—enough for about three hundred baths a day.

I cannot say that the establishment offers all the comforts one could wish for, that patients meet with the amusements

necessary in a watering-place, and that nothing is wanting in the arrangements or mode of administering baths and douches. But, such as it is, it renders great services to civil and military invalids ; its springs are efficacious ; many persons have there recovered the use of their limbs and reinvigorated their shattered constitutions. The establishment, moreover, is being improved from year to year ; the proprietor is full of zeal and goodwill. With a little assistance he will carry it to that degree of perfection one may at the present day look for in thermal establishments.

The site of Guagno is austere, being surrounded by high mountains, some of which are covered with forests of chestnut-trees, where the wild boar may be hunted at all seasons.

Guitera.—Another sulphur spring exists in the neighbourhood of Ajaccio—that of Guitera.

Less hot (thirty-six degrees centigrade), less impregnated with sulphurous principles, more mild to the skin than that of Guagno, it is much more abundant and sets free a considerable quantity of gas.

But here art has as yet done nothing to assist nature ; the water issues from the earth, collects in an open reservoir, and thence flows into a basin, or rather hole, into which patients plunge pell-mell. Nothing is more disgusting than this way of bathing ; the water, limpid at its source, soon becomes black and fetid, and the unhappy wretches who were bold enough to descend into this sewer are even left without shelter from the sun ; the most favoured expand umbrellas over their heads.

I experienced a great disappointment on approaching this source ; I had undertaken the journey on foot, passing through the fine village of Bastelica, situate on the mountain in the midst of chestnut groves. I had crossed the Querceta, a true virgin forest of oaks and beeches, where the trees fall through old age from want of roads for exploring them ; and, in spite of a frugal repast, taken on the bank of the brook that flows through the forest, and near an excellent spring, called the Bishop's Fountain, and which issues from a rock, like that which Moses caused to come forth by a blow of his sacred rod, I

arrived at Guitera exhausted with fatigue, heat, and hunger. For an hour I had been enjoying by anticipation the pleasure I have often tasted in plunging into one of these delicious baths prepared by nature, which so well comfort the heart and limbs, painful from walking and dust. But, alas! at the moment when panting I approached the spring, I only found this abominable black, muddy, filthy hole, in which, to complete my horror, a leprous human being was moving about—an old and hideous woman—whose withered limbs I could just perceive through the doubtful transparency of the water. The sight of an obscene animal would have startled me less than that of this woman; I recoiled and had not the courage to risk such a contact.

I expected, at least, to console myself with a good breakfast, but another disappointment no less cruel awaited me. There is neither hotel nor inn around the spring of Guitera, and in the two or three poor houses erected to receive patients there was actually nothing to eat. My guide and I were compelled to rest satisfied with a piece of bread and the end of a Corsican sausage, which the former found at the bottom of his bag.

And yet the waters of Guitera are sought after, for they are efficacious and salutary. When patients abound they lodge as they can in huts and tents, bringing with them all that is necessary for sleeping and eating. I met a caravan moving towards the springs, with mules loaded as if they were about to cross a desert. The department will probably not be long in expending something on account of the waters of Guitera, were it only to erect a shed over them. It is inhuman to leave invalids so totally exposed.

Caldanicia.—The springs of Guagno and Guitera are not the only ones possessed by the arrondissement of Ajaccio; within reach of the town there is another source of quite a different nature, for in Corsica we meet with almost every kind of mineral water. The other side of the mountains will present to us new species, which usually are only found at great distances from one another, but which nature has brought together in this privileged island.

The springs of Caldaniccia recall those of Vichy by the bicarbonate of soda they contain ; their alkaline quality, however, is less pronounced, but they set free a large quantity of gas, which is said to be azote. Their temperature is precisely that which is suitable for baths—i.e. twenty-nine degrees centigrade. These waters are mild, unctuous, very agreeable, and people take them in summer for mere pleasure.

The establishment is modest.

By the side of the alkaline springs of Caldaniccia flows a small source which is sulphurous, very mild, and capable of being as serviceable in chest affections as that of Bonnes, in the Pyrénées.

Orezza.—The most remarkable mineral spring of Corsica is that of Orezza.

This water is more rare than sulphur-springs. I can compare the water of Orezza to that of Spa only, and between these two points, so distant from each other, I know of no other source of the same kind. The waters of Spa are known to be acidulated and ferruginous—that is to say, they contain carbonic acid and iron, to which especially they owe their properties. These are the same principles predominating in the springs of Orezza, but in different proportions and differently combined. The mineral water of Corsica is much richer in carbonic acid gas, and effervesces like champagne, the gas being set free in such quantities. It is a kind of ferruginous seltzer-water, very pleasant to drink, and deriving from these two principles tonic and stimulating properties. The water of Orezza, moreover, contains marine salt, alumina, silica, &c.

This beautiful spring is marvellously situated in the midst of a forest of chestnut-trees, with villages scattered here and there ; it issues from the rock and leaps into a basin of granite, whence patients draw and drink it. It is used for chronic diseases of the abdominal organs, nervous diseases, enlargements of the liver, bile, or kidneys, and in the numerous cases of the impoverishment of the blood that gives rise to a great variety of morbid phenomena.

There is no special establishment at Orezza ; patients lodge where they can in the surrounding villages.

These springs are much frequented, and are even a kind of rustic rendezvous for the inhabitants of Bastia, Ajaccio, and other coast towns, who during summer seek fresh air on the hills. No place is more propitious and agreeable in this respect; fine landscapes, umbrageous groves, varied and endless promenades in shady avenues, and at four hours' distance the road of Bastia, with its numerous omnibuses conveying bathers to the baths of Fiumorbo or back to the town; everything contributes to render Orezza a veritable mineral watering-place. But an establishment is wanted for the convenience and amusement of invalids. Now one will soon be erected, for it is, so to speak, already made, and only needs appropriation. The ancient convent of Piedicroce is admirably situated to become the central assembly-room of the already numerous visitors to Orezza.

The water of Orezza is really invaluable in that infinite variety of disorders arising from impoverished blood in women, young girls, children, and convalescents. I have had various opportunities during my excursions of recommending it to poor patients, whom no doubt it would have greatly benefited; but will it be believed that this water, which belongs to the department, is sold at not less than one franc the bottle in Corsica itself—that is to say, as dear as the water of Spa, coming from a distance of three hundred leagues? Is it not deplorable that the inhabitants cannot enjoy at a cheaper rate the water springing from the soil of their island? Not that the department speculates with the water; it does not sell the right of drinking at the spring, but the Corsican means of transport are so expensive and ill organised that, delivered at Ajaccio, the bottles cost one franc each. Now, pray, propose to a poor workman or a family of shepherds to spend one franc a day to recover their health; they could not do it if their lives depended on it. It would therefore be a matter of humanity on the part of the local government to establish in each parish of Corsica a dépôt of the mineral water of Orezza, within reach of every pocket, even the poorest. A slight sum would suffice to satisfy the wants of the population, and render great service to invalids; no money could be better spent.

Puzzichello.—This spring is situate on the eastern coast, two leagues from the ruins of the ancient town of Aleria.

It is a cold sulphurous water, rich in sulphohydriodic gas and containing silica, carbonates of calcium and magnesia, sea-salt and an organic matter. It seems to me to partake of the nature of the water of Enghien.

A few years ago no establishment existed at Puzzichello ; patients encamped in huts and under tents. At the present day a vast building rises by the side of the spring, containing private and public baths ; a boarding-house for strangers has recently been erected in a pleasant position, and more than six hundred invalids at present frequent the baths, which are efficacious in cases requiring sulphurous waters.

Pietrapola.—This is the richest, most abundant, and hottest mineral spring of Corsica. The Romans therefore had here constructed baths, of which remains still exist. It is situate in the Fiumorbo, and people come to it from all parts of Corsica, and even from the mainland, chiefly from Italy.

There are no less than seven sources at Pietrapola, and as many as two thousand baths can be supplied a day ; their temperature varies from forty to sixty degrees centigrade.

The establishment is growing and improving every year, and is destined to assume grand dimensions.

Dr. Carlotti has carefully studied their action in a multitude of greatly varying cases. Contrary to many sulphurous springs, they appear to be neither exciting nor stimulating ; they quiet the pulse and succeed in disorders of the digestive organs, nervous affections, paralysis, &c.

MINERAL WATERS OF SAVOY.

Aix in Savoy.—I am favourably disposed towards the springs of Aix ; I owe them a certain amount of gratitude. Worn out by the ardour of the sun of Provence in the month of July, I arrived suffering, almost ill, in Savoy. Having lost strength and appetite, I no longer felt disposed to continue my journey ; in this unbearable state of languor and illness, for which there is scarcely a special remedy, it struck me to have recourse to the baths, not in a methodical and continuous manner, but according to the perturbing treatment—that is to say, I had a general douche, alternately hot and cold, or Scotch douche, with friction and shampooing of the limbs ; after which I was hermetically wrapped up in hot woollen cloths and subjected for an hour to copious sweating. It was marvellous how supple, fresh, with head and stomach at ease, I came forth from this, breathing freely and feeling nothing more of the weariness that had affected all my organs. Am I not right in saying that thermal springs are remedies prepared by nature for all kinds of complaints, and that all we have to do is to choose and employ well ?

Aix is a privileged thermal locality ; nature has freely bestowed its favours on it ; waters of different degrees of sulphurousness and activity, with a temperature which dispenses with the necessity of either heating or cooling them, flowing over a natural slope in varied and powerful douches, and with such abundance as to be inexhaustible, rushing freely night and day through I do not know how many taps which are never closed, overrunning into tanks and public fountains ; and all this wealth amidst delightful scenery, at the foot of these beautiful mountains, which rise in terraces up to Mont Blanc, and on the banks

of the Bourget, that lovely lake forming by itself a great bath, inviting you to plunge into its azure waters! What a bath indeed, and what a charm in these waters, limpid and blue as the water of icy lakes, yet warm as those of the sea!

Have men realised all such conditions seem to offer, and has art shown itself on a level with nature in this favoured land?

Aix may, in several respects, serve as a model to other establishments.

The management is perfect; the establishment is organised and appointed in a remarkable manner; everything is provided for. The means of applying the water are as varied as possible; nowhere has medical science displayed more invention and discovered more ingenious processes to diversify the application of the water in all its forms, degrees of force, temperature, volume, &c. From the imperceptible jet of vapour, or the finest thread of water, which strikes the evil on the precise spot or gently caresses the painful organ, to the general douche, acting on the whole body, in a stream or from the rose, to the hottest application and the piercing shock of the columnar douche, you may pass through all the intermediate degrees and subject human infirmities to all kinds of action, all degrees of excitement and all transitions. The jet-pieces of every kind for douches, various appliances for attacking local complaints without inconveniencing or fatiguing the patients, form an arsenal, a museum full of curiosities, which the observing and inventive mind of the resident physician, M. Despine, is daily enlarging to answer every possible contingency. Add thereto the tanks, or rather swimming-baths for ladies and gentlemen, the private hot vapour baths, the rotundas where you may breathe whilst walking about or reading, a tepid and slightly damp air, and finally the nature of the waters, their temperature exactly in harmony with the temperature of the body, their volume and fall, which allow of graduating at will the force and volume of the douches, and you will have an idea of all the resources which the establishment of Aix places at the disposal of invalids and of the skilful physician who directs them.

I must, however, observe that the bath attendants of every description have as yet much to learn in the useful art of rubbing and shampooing; whatever care the management may exercise in the selection of these important *employés*, they are far from realising what we are told concerning their Eastern colleagues, and, without even comparing them with such renowned persons, one feels that they could be a great deal more tender in the compression of delicate joints, the shampooing of muscles fatigued or painful from rheumatism; the limbs and the flesh ought to be gently manipulated, so to speak, and not heavily pressed, to restore to them their elasticity and suppleness. A thermal establishment provided with a truly clever *personnel* would command the patronage of all invalids suffering from pains in the limbs.

M. Despine had the happy thought of forming an anatomical museum composed of artificial pieces, representing as exactly as possible the most severe as well as most interesting cases of disease treated at the establishment of Aix, some with complete success, others with improvement, and others again without any beneficial result. These are true annals of science, valuable witnesses, collected in good faith, speaking to the eyes, and which will always be consulted with advantage. In this cabinet, in the midst of these models after nature, before and after treatment, I have been able to arrive at the conviction that one must not too quickly despair of curing certain complaints, which sometimes appear beyond the reach of art only because they have not been combated with all the resources of hygiene—air, climate—all the means, in fact, which act on the entire constitution, combined with a methodical treatment at the baths. From among many examples of reputedly incurable diseases I could mention that of an enormous white tumour on the elbow radically cured by persevering treatment during two seasons.

The treatment of the sulphurous waters of Aix may be reduced to three principal methods :—1st, the *stimulating* treatment by means of douches, vapour, and hot baths; 2nd, the *depressing* treatment by tepid ablutions and baths of a tempera-

ture below that of the blood, continued for long periods ; 3rd, the *perturbating* treatment by means of Scotch douches, alternately hot and cold.

The action of the water is, moreover, favoured at Aix by the climate, the pleasantness of the country, the calm and simple life led there. It is not a place for noisy pleasures, large assemblies for dance and play, where luxurious toilettes are displayed and gold rolls on green cloths ; nothing is plainer than the habits of Aix ; but, on the other hand, nothing is more smiling and gay than the square of this little town—the starting and returning point of all excursions, on foot, in carriages, on horseback, and especially on donkeys. From the balconies of the hotels surrounding the square you enjoy the most lively, varied, and amusing sight ; it is a living magic lantern, with the local colouring and picturesque effect of donkey-drivers in Savoyard costume, and the crowd of promenaders of both sexes, every age, every country, and every fashion, indulging in rustic pleasures, bestriding their animals, or climbing into chars-à-banc, to visit the shores of the lake, or Haute-Combe, or the cascade of Grésy, ever famous by the fall and death of the young Baroness de Broc under the eyes of Queen Hortense.

The promenade to the monastery of Haute-Combe, situated at the extremity of Lake Bourget, is one of the most beautiful and interesting in the neighbourhood. The lake is crossed in small boats with good rowers, and the fare, as all others, is settled by tariff, so that there can be no dispute about the charge. The abbey of Haute-Combe is the Saint-Denis of the house of Savoy : it is the place of sepulture of the princes of this family, and has been magnificently restored by the King Charles Felix. A little more taste in the ornamentation of the chapel might be desirable, but the *ensemble* has a sacred character, and some of the tombs are adorned with finely-executed statues.

But what is exceedingly beautiful at Haute-Combe is its site ; the lake is enclosed on one side by steep and gloomy mountains, which bathe their feet in its limpid waters, and on the

other by the smiling shores, dotted with hamlets and old castles. Whilst I was admiring this beautiful lake from the garden of the small inn at Haute-Combe a young eagle hovered in the air, describing large circles and executing those undulating movements which are said to fascinate the victims upon which birds of prey are preparing to pounce. I saw nothing on the surface of the lake which could be the object of the young eagle's pursuit, and yet he seemed bent on such a pursuit. All at once I see him dart from the height above, rest on the lake, skim the water, and suddenly rise again, carrying off a fish in his claws. Is this not a clever mode of fishing, requiring great strength and admirable precision?

At a greater distance Chambéry offers its charming promenades, especially those of Charmettes, which I recommend to those who cherish the memory of Jean-Jacques ; no place is more suited to excite their emotions, for it is the abode of Mdme. de Warens and Rousseau. Nothing is altered in this house and garden, which seem only to have been abandoned the previous evening.

Finally, if you penetrate as far as the Grande Chartreuse, you shall enjoy the solitary and picturesque aspect of this monastery situate in the midst of mountains, at the bottom of a profound gorge, where old monks, long since retired from the world, will kindly receive you.

MINERAL WATERS OF CENTRAL FRANCE.

PASS we now into Central France, and visit Mont-Dore, Vichy, and Nérès.

Mont-Dore.—The establishment of Mont-Dore is situate in the centre of the mountains of Auvergne, at the foot of the Peak or Puy de Saucy, in a small valley, through which flows the Dordogne. This beautiful river at this point, however, is as yet only a narrow torrent, almost dry in summer, and itself formed by two small rivulets, the Dore and the Dogne, falling in cascades from neighbouring rocks.

To persons returning from the Pyrénées, full of the impressions of those beautiful sites—green lawns intermixed with arid rocks and plateaux covered with snow, where the landscape, now graceful, now harsh, is incessantly animated by cascades—to such the mountains of Auvergne, with their black and arid cones, lean meadows, and heather, appear sad and desolate.

The population contributes not less in producing the contrast. In the place of men lively, well made, with open countenances, you encounter none but coarse peasants, slouching in their walk, and concealed under immense round hats, which certainly cannot be compared with the cap of Béarn. Instead of slender women, elegantly carrying their burdens on their heads and walking briskly with naked feet, you behold stumpy women with awkward air, wearing big wooden shoes and hats of Auvergne straw, which they place on the front part of the head, like our dealers in cast-off clothes.

Nevertheless, after having seen the Pyrénées, one cannot without emotion behold, from the summit of the Puy de Dôme, the view extending on the one side over the fertile plains of Limagne, and on the other over all those extinct volcanoes,

those heaps of black cinders vomited forth by mouths now dumb, but whose formidable voice formerly accompanied the revolutions of the globe, of which these places were the theatre. The view is no less remarkable from the summit of the Puy de Saucy, the culminating point of these mountains, whence you discover beyond Forez, the chain of the Alps, and Mont Blanc.

The small valley of Mont-Dore itself is pleasing enough, and fine houses and good hotels have been erected in the village to lodge the patients whom the efficacy of the waters draws to the spot every year.

Six principal sources feed the establishment of Mont-Dore, yielding no less than 350 cubic mètres every twenty-four hours, which are sufficient for about seven to eight hundred baths and douches a day. Their temperatures vary from seventeen to forty degrees centigrade.

As to their composition, it varies but little in the different springs, and is not sufficient to explain their mode of action. The waters of Mont-Dore belong, in fact, to those whose chemical analysis is very insignificant as regards their curative effects. It is impossible to attribute their action in chronic chest affections, paralysis, and rheumatic pains, as well as their tendency to produce leanness, to the small proportion of saline matters, soda, and chalk they contain. It is probable that there exists in these waters some other principle which escapes analysis, some organic product analogous with barégine, to which, besides the temperature, which is of great moment, they are indebted for their efficacy.

The bathing establishment is vast and solidly constructed; its vaults of blocks of lava can resist the avalanches that in winter threaten to overwhelm it. But, as there is always some imperfection to reproach to human works, it must be said that the building is deficient in light and air; it is gloomy in its interior, but the façade is fine, and the builders have had the good taste to recall in some of the architectural details the Roman monuments, whose remains have been discovered.

The establishment of Mont-Dore possesses all that is needed

for properly administering baths, douches, &c. It is well provided with every kind of well-appointed apparatus, wanting neither tanks nor vapour baths. It is, in fact, a perfect establishment.

When the village of Mont-Dore shall be more properly kept, and especially better paved, when the guides shall know their business better, and no longer bring you half an hour after sunrise to the spot whence you intended to contemplate this spectacle, we will make known those improvements which are still needed for the comfort and amusement of strangers.

Vichy.—Vichy is so well known that I shall say but little concerning it. Vichy transformed is the queen of thermal residences.

What a singular country is this, where you cannot make a hole in the ground, dig a well, without obtaining alkaline water, with the flavour of lye, and possessing certain well-known properties ! It is but a short time the difficulty at Vichy was not to discover mineral water, but, on the contrary, to procure fresh water, common water, and this over an extent of several leagues.

It would be an interesting subject to study the diseases prevailing in the valley of Vichy, to discover whether the alkaline nature of the waters permeating the soil, and which must be met with in some degree in most of the springs and wells used by the inhabitants, has any influence on the nature of the disorders—whether morbid dispositions are modified thereby. Are there more or less persons suffering from gravel, stone, or gout than elsewhere ?

The thermal establishment is magnificent, and, in spite of its gigantic proportions, scarcely suffices for the immense number of invalids frequenting the place. Not only are these springs beneficial in a host of disorders, in varied and widely-spread affections, but they in a manner are unique in the world, and people come hither from all parts of Europe. Moreover, the visitors of Vichy belong to the higher classes of society ; for enlargement of the liver and intestines, gravel, stone, and gout are frequently the consequences of an idle life, a comfortable regimen, and succulent dishes.

Are the Vichy waters favourable to the treatment of gout ?

Prunelle¹ said No ; Ch. Petit² said Yes : the one warned the gouty away, the other invited them. This was puzzling. As for me, all that I can say is that alkaline waters are evidently calculated to combat one of the ordinary effects of gout—the presence of uric acid in excess in urine—that by analogy we may suppose them to have the property of dissolving enlargements of the joints, equally produced by uric acid ; but these are only effects or results of gout ; and as to gout itself, its nature and cause, we can say nothing ; experience alone can decide.

Is Vichy water able to dissolve gravel and stone ? It is less the substance of the stone itself which is attacked by alkaline waters than the organic matter, the condensed mucus which unites and cements the stony particles. But this is the essential point, for the object is to disintegrate the stones that are formed. It thence follows that the water of Vichy acts equally well on all kinds of stone, whatever their composition be ; the cement is always the same. Yet I would not rely on it in all cases, for I have seen stones so rapidly formed by means of the alkaline salts which certain individuals produce, that I would not venture to promote this secretion by giving them Vichy water to drink. Ah ! if Vichy water prevented the formation of the mucous matter which tends in such persons to combine the saline substances existing in every organism, but which do not agglomerate in the normal state, this would be an invaluable property ; the stone would thus be attacked in its origin and chief cause. But at present we know neither the circumstances which modify the mucus and impart to it glutinous properties, nor the means to prevent this modification. In a word, we do not know why the saline matters in urine do not combine in some persons, even when existing in excess, and why, on the contrary, they combine in

¹ Prunelle, 'Sur les Propriétés attribuées aux Eaux de Vichy contre les Calculs de la Vessie' (*Bulletin de l'Académie de Médecine*. Paris, 1838-9, t. iii. p. 811 et suiv.).

² Ch. Petit, *Du Mode d'Action des Eaux de Vichy et de leurs Applications thérapeutiques*. Paris, 1850.

others. We consequently are ignorant of the means of resisting the production of the organic matter which forms the cement of stone and gravel.

After this digression let us say farewell to the splendid sources of Vichy, but let us stop another moment at the spring of the Great Grille and before that of the Hospital, and contemplate for a while the effervescence produced by the countless bubbles of carbonic acid gas which stir up the water, and then let us start for Nérís.

Nérís.—The many remains of Roman buildings found at Nérís prove what importance the conquerors of Gaul attached to these springs.

And yet the chemical analysis of the waters of Nérís is insignificant enough ; a little soda, a little chalk in the state of chlorine, sulphate and carbonates, and traces of silicate—this is all ; but these waters are charged with an unctuous and undefinable substance, to which probably they owe their soothing virtues.

It is impossible to imagine all the resources it was necessary to resort to, all the combinations it was necessary to invent, to vary the administration of these springs, to find in them, as in a kind of pharmacy, the remedies suited to all circumstances, to all the varieties of disorders in which they are beneficial. And as chiefly nervous diseases, pains in the limbs, slow recoveries from the exertions of childbed, seek relief of Nérís, it was a difficult task to accommodate all the exigencies and caprices even of those affections, in which the moral nature is often as much disturbed as the physical. We may say that all has been provided for with singular skill. Wherefore also, in visiting this establishment, inspecting its different parts and reviewing its details, we seem to be anatomising a body and following the ramifications of a vast arterial system. The water-conduits are underground ; pipes of every calibre are laid along the vaults, and jointed into one another ; the taps and jets are innumerable ; the whole forming a labyrinth in which you would be lost, unless accompanied by an experienced guide.

There are, then, at Nérís baths of every degree ; douches of

every volume and pressure, from the weakest to the most energetic ; vapour and steam baths, where you perspire as at the time of *Mdme. de Sévigné* ; and all this graduated at will by means of taps, whose orifices, accurately calculated, give such a degree of temperature with half a turn, and such a degree with a greater turn. You may receive tepid douches on one part of the body and very hot ones on another, just as they may pass through every degree of force and volume. To complete this system the ideal would be to gradually raise the temperature of the same douche, and let it ascend the thermometric scale from ten degrees up to forty and beyond.

The mechanism of this vast apparatus is so artistically combined that all is done without noise and without your hearing a loud order given. Silence and calm reign throughout the building whilst everything is actively at work. The medical orders being given beforehand, everyone is at his post, the patient quietly in his bath, the attendants at the doors of the cabinets, the doucheurs at their reservoirs, &c. When it is necessary to increase the temperature of a bath or douche, not according to the will of the bather (for he has no taps under his control), but according to the physician's order, not a word need be spoken ; an indicator, communicating at once with the cabinet and the reservoirs, shows on a table the different degrees of heat ; it suffices to place it, for instance, on No. 30 to inform the attendant at the reservoir, and instantly, by a turn of the tap, the water reaches the temperature indicated.

It may be imagined what a quantity of water must be supplied by the spring to suffice for such demands ; it amounts, in fact, to no less than one thousand cubic mètres in seventy-four hours, and water at a temperature of fifty-one degrees centigrade.

I should not finish were I to attempt to describe the whole system and all its ingenious appliances ; suffice it to say that everything is provided for and calculated as in an accurate machine.

MINERAL WATERS OF WESTERN FRANCE.

WE now arrive at a region very poor in mineral waters, presenting to our attention but one thermal establishment. In the whole west of France, in Normandy and Brittany, we in fact meet with the warm spring of Bagnoles, which is the only saline source of that region ; around it there are none but common ferruginous waters, as there are everywhere, excepting, however, the springs of Forges.

Bagnoles.—In the midst of the blooming landscape of the Department of the Orne, covered in the month of April with a carpet white and velvety like the snow of the Alps, but due to the blossoms of the forests of apple-trees, and still more of pear-trees, of this part of Normandy, there is the small valley of Bagnoles. Nothing is more unexpected than this valley, bristling with rocks and pines, at the bottom of which a brook rushes along ; it seems to have been transported hither from some part of the Pyrénées, and resembles a small Switzerland in the centre of this fertile country, the home of fat meadows and prolific fields, but not of the picturesque. From Alençon to the large town of Couterne I had been admiring this garden of Normandy, symmetrically divided by hedges like a vast draught-board. Nothing led me to suspect the neighbourhood of one of those thermal localities, those hidden retreats to which a beneficent spring seems to call suffering mortals there to seek repose in solitude. But you have hardly left the town of Couterne when a narrow, dark avenue, bordered by trees and vaulted like an arbour, invites you to follow it ; this, in fact, is the road to Bagnoles. From this point everything changes around you ; the open spaces contract and the view becomes limited. Instead of a wide-spreading landscape you behold, through occa-

sional openings of the wall of verdure skirting the road, only meadows watered by the small river Vée. You may catch a glimpse of an ancient manor-house, the castle of Couterne, silently reposing in the midst of a grove, to which a majestic and gloomy avenue of trees, centuries old, conducts you. A historical name and terrible revolutionary episodes invest this stronghold, standing sentinel at the entrance of the valley of Bagnoles, with peculiar interest. The stream soon offers itself as your guide, an avenue of poplar-trees skirts its windings, and you fancy you are making your way into the park of some fortunate landowner, or lover of the picturesque, whose domain extends from the stream to the top of the rocks, rather than into a thermal establishment. Bagnoles, in fact, is a veritable park, a pleasance, or rather a group of dwellings situate in the midst of a beautiful park ; such are the characteristic features of Bagnoles.

The thermal establishment and chief buildings are situate at the bottom of the valley, on the banks of the stream. This is the centre of the life in common, calm though in society. But if you prefer absolute retirement, or wish to settle apart with your family, and in your own fashion, in an isolated cottage, as you might do in a locality selected by yourself, ascend these slopes, gain the upper portion of the park, and there you shall find small plainly-furnished houses, some under the high trees, others in the middle of little gardens, above the kitchen garden with peach and pear trees. There, at a moderate price, you may find room for your wife, children, and servants, and the neighbouring farms will supply you with poultry and vegetables, milk, and every other kind of provision necessary to sustain life. All you will have left to do will be to go down every morning to take your bath or douche, or to drink the water at the spring, according to the nature of your disorder. Depart, then, from Paris, take with you all your household, and I will answer for it you will be able to undergo a complete treatment of the baths of Bagnoles, continuing all the time to live exactly as at home, without interfering with your habits, without being stunned by the turmoil of large watering-places, and without

its costing you much more than if you had stayed at home. Is not this a rare and invaluable advantage for a thermal establishment? Therefore I point it out to the lovers of a quiet life, to moderate purses, and to patients who seek at a watering-place health, and not noisy arrangements.

Not that at Bagnoles all the ordinary means of diversion be wanting. Society, assembly-room, reading-room, music, and even balls are to be had there, as well as all the means of transport, horses and carriages to visit the environs, to go to Domfront and its Gothic castle, the feudal ruins of Bonvouloir, the old chapel of Lignon, the Château du Diable, to Saint-Hortier, and the ancient castle of Lassay. You may wander through the forest of Audaine, and, moreover, fish and hunt at your pleasure in the park; and, as the park is not separated from the forest, you may at least meet with a few rabbits.

But I should at Bagnoles chiefly seek a calm and pleasant life, solitary promenades, with a book or a friend, under the pines and other high trees of the forest or on the borders of the lake. This is the prevailing sentiment among visitors to Bagnoles; everything there creates it and invites you to peace of heart and mind.

The chemical composition of the waters of Bagnoles is imperfectly known; the deeper knowledge of mineral waters is of very recent date. It will, therefore, not be surprising that the waters of Bagnoles belong to the category of those whose action is not sufficiently explained by the presence of the chemical substances discovered in them. Many springs whose efficacy is undoubted are in the same case; whether, indeed, they are efficacious by virtue of unknown or inapprehensible principles, or chemical science is not yet advanced enough to analyse their composition.

It is a settled fact that the waters of Bagnoles are beneficial in the treatment of rheumatism and long-standing pains. If their temperature were higher, we should say that this is a property they share with most hot springs; but their caloric not rising above twenty-five to twenty-seven degrees centigrade, this temperature constitutes only very cool baths. It is true this warmth

is artificially increased, and then probably these waters act by temperature and the stimulating property imparted to them by the salts they contain. Wherefore, also, an especial efficacy is attributed to Bagnôles in the treatment of skin-diseases ; their use promotes eruptions calculated to modify the functions of this organ. They are endowed with tonic qualities, very useful in chronic diseases of the stomach, known by the name of *gastritis*, and in some nervous states of the bowels and other abdominal organs.

Is it to the presence of sea-salt, to traces of sulphate of calcium, of muriate of soda, and magnesia discovered by Vauquelin, that the springs of Bagnôles owe their qualities ? Once more, their chemical analysis needs revision, like that of a great many other springs, by skilful hands, at the springs themselves, and under all the conditions of exactitude possible.

What are the numerous bubbles of gas they set free ? Do they contain bromine, arsenic ? No one can tell. What is the organic matter they deposit ? Is it to this they owe their unctuous property, so pleasant to the skin ? We know not.

Forges.—These are truly ferruginous waters, which are destined to come into favour again ; not, indeed, as at the time of Louis XIII., when the tardy birth of the heir to the throne, after eighteen years' barrenness, was attributed to the efficacy of these springs, but by reason of the iron they contain in great plenty and in the most felicitous combination.

Since the composition of the blood and humours is better known, since we are aware of the important part iron plays in our organism, this ingredient is largely used in medicine, and a thousand methods have been invented of introducing it into the system ; but frequently, after having tried a multitude of artificial preparations, more or less ingenious, patients are compelled to have recourse to the natural ferruginous waters, which the constitution can better bear. The human economy seems sometimes saturated with iron. When only the stomach is fatigued, it suffices to change the mode of administering it, to substitute for artificial preparations water naturally holding iron in solution, to see the stomach strengthened and health return

as the ferruginous element penetrates the blood and filters into the organs. Wherefore we think that certain ferruginous sources that long enjoyed an empiric reputation, but were eventually abandoned, will come into favour once more, not to lose it again, because it will be well deserved. Forges and Spa especially belong to this number ; the specific power of removing sterility will no longer be attributed to them, but it will be known that they restore lost strength by restoring to the blood the element it lacks, and reanimate the organs by vivifying the blood. These are frequently the conditions most favourable to fecundity.

The springs of Forges contain iron combined with an acid discovered by Berzélius, and which is designated by the name of crènic acid. The crenate of iron exists abundantly in the springs of Forges, and it is no doubt to this that are due the yellowish flakes that may be seen floating on the surface of the water of the springs, and which are said to present a very singular phenomenon. 'These flakes increase in a very marked manner before sunrise and one hour before its setting. When a storm or heavy rain is impending the water is troubled by the quantity of flakes that cover it, and finally the violence of the storm or abundance of rain is indicated by the quantity of yellow flakes seen in the water, and during the time it is troubled forms the barometer of the country.' Such a fact requires fresh observations to be confirmed.

The sources of Forges, situate in a part of Normandy between Neufchâtel and Gournay, at a short distance from Rouen, offer an agreeable abode to invalids who cannot go far and seek neither fashionable amusements nor picturesque sites.

MINERAL WATERS OF NORTHERN FRANCE.

Saint-Amand.—Had I visited Saint-Amand during the bathing season, I could not have abstained from plunging into this foul mud personally to test the action, said to be marvellous, of this large cataplasm, which covers the whole body ; but I confess I entertain no pleasant ideas of this immersion, especially as the temperature of the mud is very low, and you feel on entering a shiver which is only dissipated by the reaction. This reaction is the result of the excitement produced on the skin by the pressure of the mud and its slightly irritating nature ; but until warmth has returned to the exterior this shivering sensation in a semi-liquid slime must be very painful, not to speak of the disgust inspired by the successive immersions of invalids, whilst the matter is not renewed.

It is a strange idea to plunge patients into swampy mud, and, had I not great respect for experience, I should be tempted to think that the mud of Saint-Amand is perhaps in the same case as certain disgusting remedies in which our ancestors for centuries had a superstitious faith, but whose true nature has been shown by the progress of enlightenment. But the good effects of this mud on diseased—nay, almost paralysed—joints and limbs, on old wounds, and especially on rheumatism contracted in the bivouac—nay, the very results obtained in diseased animals—testify to the real virtues of this remedy.

‘After the conquest of Holland, in 1794, in the midst of a very rigorous winter, a great number of soldiers, as Patissier and Bontron-Charlard inform us, were sent to Saint-Amand. Many of them suffered so severely from rheumatism that paralysis and atrophy ensued ; and, according to the report of M. Armet, most of these soldiers were cured or greatly relieved.’

The establishment of Saint-Amand, situated in a flat and marshy country, is composed of a vast rotunda, whose floor, divided into compartments, forms a multitude of baths filled with mud and deep enough for plunging nearly the whole person vertically into them. Every bath is transformed into a private apartment by the curtains that surround it. The mud is but seldom renewed, but warmed and maintained in its semi-fluid state by numerous jets of thermal water.

MINERAL WATERS OF EASTERN FRANCE.

Luxeuil.—The waters of Luxeuil are abundant and analogous with those of Plombières.

But, being less stimulating, they suit delicate persons suffering from disordered digestive functions, gastritis, chronic bowel complaints, rheumatic and neuralgic pains.

They are distributed through a handsome building, where 300 persons may bathe a day, both in private baths and tanks ; the douches are well arranged and graduated at will.

Must we attribute the properties of these springs to their saline matters (sulphate of soda, carbonate of chalk and magnesia, chloride of sodium, &c.), or to the organic substance which they contain, and which, according to Longchamps, is not *barégine* ? Both probably play their part, and from their close union arises the exciting action on the secretions of the kidneys and skin, stimulating the nervous membranes and promoting circulation.

Plombières.—This country is marvellously adapted for its destination ; the lovely valley of Plombières in some degree reminds us of Pyrenean sites. As soon as you advance into it you experience some of the impressions produced by mountains, and you recognise a spot fitted by nature for thermal springs and bathers. The way in which the houses of Plombières are grouped, the management of hotels and furnished houses, and even the character of the inhabitants, complete the general physiognomy of the country.

You feel that the baths here are the grand business of life, and that people live by the baths only ; they are the wealth of the country, forming almost its sole industry, for that of shovels,

tongs, and other utensils, and steel ornaments, exists solely with regard to the bathing season, and prospers only by the sojourn of visitors ; it is to Plombières what that of Spa-boxes is to Spa.

I like a bathing country to be exclusively devoted to its speciality, and am not at all attracted by a town whose streets are full of trade and resemble those of any other town. This is the reproach I make to Bourbonne and Aix-la-Chapelle ; on entering those towns you do not suspect that you are in a bathing locality, favoured by nature and inhabited by a nymph.

The baths of Plombières, belonging to the State, are well appointed ; private baths, tanks, vapour-baths, douches, nothing is wanting. I particularly admire the new building, composed of a handsome entrance hall, or rather saloon, around which are arranged the private baths. This place, in my opinion, realises all that is needed for taking a bath in the most agreeable manner—a hall comfortably warmed by the springs themselves, whose waters flow underneath the floor, and where a tepid air circulates, impregnating the skin with a slight moisture and thus dilating it, opening its pores and preparing it for the beneficial action of the thermal water ; elegant private dressing-rooms, whose floors and sides are equably warmed by a subterranean current of steam, and where the feet rest on marble without feeling the slightest sensation of cold ; limpid and soft water, unctuous to the skin, in which you may remain plunged a long time without growing relaxed as in ordinary water, and whence you issue forth with renewed suppleness and strength.

The springs of Plombières are remarkable for their plentifulness, temperature, and especially by their much greater action than might be inferred from their nature and the quantity of mineral principles they contain. They belong to the category of those whose effects are not explained by chemical analysis. Certes if, instead of being the result of empirical experience, the application of thermal springs to the cure of disease had been founded on the data of chemistry, if men had waited for the results of analysis to determine their action, fix their degree

of energy to indicate their uses, the springs of Plombières would have occupied but a very inferior place, and no one would have thought of attributing to them the virtues they possess. What might have been inferred from the presence of a little carbonate of soda and chalk, a small quantity of sulphate of soda and sea-salt, a trace of silica and an unknown animal matter, with respect to therapeutic effects? How could we on these scientific data have attributed to them a special efficacy in abdominal affections, chronic diseases of the intestines, disturbed digestion, and consider them fit to restore the functions of stomachs worn out, or suffering from that nervous condition known as gastritis?

Surely it is a prejudice, at least in a medical sense, to take the baths only in summer, during the greatest heat; it may be more agreeable, but is not more efficacious in many cases than taking them in winter, or at least when the season is still cold.

I was at Plombières in very severe weather, though it was spring. The country was covered with snow, which did not prevent me from taking the baths and inducing an invalid that accompanied me to take them. Well, these waters, endowed in truth with qualities I find exquisite, produced nevertheless an excellent effect. They as usual, and in the most favourable season, imparted to the skin that softness and suppleness which are so agreeable and so calculated to restore its functions. This marvellous property of the waters of Plombières renders their use a great enjoyment, whilst it is a curative remedy. What a difference in feeling, on leaving the bath, that softness of the skin, instead of that dryness and harshness which certain waters impart to it! Were I not afraid of giving myself an air of sybaritism and luxuriousness, I would avow that it was to me a pleasure such as one dreams of in reading the 'Thousand and One Nights' to plunge every day into those delightful basins, where I was alone and of which I disposed as if I had been the proprietor.

But besides the pleasure I experienced positive effects; as my own person is in question, I need not fear being indiscreet,

and what I experienced may perhaps offer some useful hints to my readers.

I therefore beg to be allowed to enter into some details ; we are talking of infirmities, but infirmities, alas ! are to such an extent the heritage of mankind, threaten us from so many sides, and so very few persons escape them, that I may be excused for giving, while speaking of mineral waters, information which may be of service to many.

Most people know the ringing or hissing in the ear which sometimes follows assiduous labour, sad preoccupation, or other causes. This troublesome noise is often accompanied by a feeling of obstruction or itching from the auditory canal, which induces people to introduce some foreign substance into it—a fatal proceeding, which only augments the evil and is the cause of many an instance of deafness. It is thus an irritation of the auditory conduit is established, a chronic inflammation, and later on a kind of dessication of the membrane lining it—circumstances which are highly unfavourable to hearing. The suppleness and integrity of this membrane, which is a continuation of the skin, are no less necessary to the exercise of hearing than the integrity of the apparently most essential parts of this delicate apparatus ; in fact, a trifling congestion of the membrane in question, an irritation of the secretion, are sufficient to impair or destroy the apprehension of sound. Deafness, I repeat, with many persons has no other origin, and many deaf people owe their infirmity to that instrument of the toilette whose name I will not mention here.

This hissing or ringing in the ear just spoken of had troubled me for some time, and made me fear a commencement of deafness on one side ; it occurred to me to apply for the cure of this inconvenience the waters of Plombières, so fit to soften and render supple the skin, not by means of injections into the conduit—a detestable proceeding, which acts in the same manner as the instrument I declined to name—but by plunging altogether into the tank, remaining under water as long as possible, and repeating this experiment until the water should penetrate of itself and without effort into the affected part.

This treatment at first brought on a more distinct buzzing, but I expected it and was not disquieted. Every day I had recourse to the same remedy, and though my avocations did not allow me to devote more than a week to this cure, it was complete.

I do not altogether attribute the virtue of producing such a result to the water of Plombières alone, but think this treatment might successfully be adopted in other thermal baths, perhaps even in sea-baths, according to individual conditions ; but I must observe that the same remedy in ordinary water has not been equally successful.

Bourbonne.—The waters of Bourbonne are reported to possess so much energy, to act with so much force on the organisation, and even on the composition of the tissues, that I really hesitated to plunge into them from mere curiosity or love of science ; but, reassured by an esteemed colleague, I upon his word entrusted myself to these waters, which seem destined only for paralytic, rheumatic, and lame persons, sufferers from enlargements of the joints, badly healed wounds, old fractures, or dislocations. Well, they are soft, unctuous, and it is only in the long run that they impart to the skin a certain rigidity. They are very saline and their temperature high. Their use is frequently followed by skin-eruptions, diarrhoea, copious sweats, and other secretions which carry off the morbid principles, vitiating the fluids and congesting the tissues of the system.

But one must be seriously ill to come to Bourbonne, and be convinced that these springs are especially efficacious in the complaint from which he suffers, for this place is not seductive ; it presents neither the pleasures of the country nor those of the town, nor the comfort of hotels. Nevertheless Bourbonne is an establishment important in itself and on account of the military hospital annexed to it. This latter contains no less than five hundred patients, one hundred of whom are officers. Founded by Louis XV., enlarged by Louis XVI., it was improved under the Restoration.

Contrexeville.—The saline gaseous water of Contrexeville

deserves being pointed out to persons suffering from gravel and bladder complaints.

The water of Contrexeville is chiefly taken as drink, the baths being merely auxiliary.

The water is cold and cannot be sent to other places without losing a great portion of its virtue.

Bussang.—The springs of Bussang, situate not far from the above, supply a water famous for exportation, analogous with that of Contrexeville, and which does not suffer from transport.

MINERAL WATERS OF SWITZERLAND.

AFTER the calm and quiet regions of the Vosges I determined to follow the crowd of nomadic bathers across the Swiss mountains.

Loèche.—The springs of Loèche are highly interesting on account of their situation, properties, and singular mode of administration.

Plentiful and of a high temperature, these waters belong to those whose chemical analysis does not explain their energetic properties.

In fact, one scarcely knows under what category to class them. Must we attribute their virtues to the iron they contain, or to the sulphate of calcium or magnesia, to chlorine, or to the sulphurous gases they set free while effervescing? Must they be classed among gypsum or sulphur-waters?

They are generally considered as ferruginous, but, besides the fact that the medical properties of this principle are not sufficient to explain the effects of these springs, it is really sulphate of chalk or gypsum that predominates in them; and what connection can we establish between the existence of plaster and the phenomenon of the *poussée*, or skin-eruption, of which we shall speak presently?

Some slight shades of difference excepted, all the springs of Loèche are alike, and probably issue from the same reservoir. The water is inodorous, and with a taste so slightly pronounced that some call it metallic, others bitter, or just a little saline; others find in it no difference as to taste from ordinary warm water.

The property they possess of colouring a golden yellow new

pieces of money one deposits in them, proceeds from the oxide of iron they contain.

To judge them, therefore, by their chemical composition only, the waters of Loèche ought to be considered as very indifferent from the medical point of view ; but experience, on the contrary, has shown that they are endowed with great energy ; they are one more instance of water whose composition, such as it is revealed to us by chemistry, in no wise accounts for its physiological properties. No thermal source is more suited than that of Loèche to show that science is far from having said the last on mineral waters. The active principle of these waters, prepared in the mysterious laboratory of nature, resembling the vital principle of organised beings it is destined to relieve, escapes our observation.

The *poussée* appears after a certain period of using the waters as an eruption on the skin, in various forms, sometimes simulating measles, sometimes erysipelas, occasionally bringing in its train a general or partial swelling of the body, or giving rise to excoriations and sweat, so abundant that the linen is soaked with it. This sweat has sometimes been so copious as to soak through the mattress, and patients are seriously affected by such a crisis, which, however, always ends favourably.

At first one is tempted to attribute the phenomenon of the *poussée* or rash to the kind of maceration the skin undergoes by its prolonged contact with the water. But the *poussée* appears not only in persons who bathe and spend whole hours in the tanks ; it also occurs after a few baths of short duration ; and even, which is still more remarkable, a few glasses of water drunk at the spring suffice to bring it on. Thus one of the most distinguished and honourable physicians of Geneva, who had no interest whatever in the question of the baths, told me that he had seen the maid of a lady he had sent to Loèche seized by an intense *poussée* after drinking the waters for a few days, just because she had nothing else to do.

What connection, we ask once more, can there be between the salts of calcium, soda, magnesia, or traces of iron contained in the springs of Loèche and such an outbreak on the skin ?

The waters are administered at Loèche according to the various methods practised in all thermal establishments. Thus general or local baths, douches, drink, injections, vapour-baths, lotions, are applied as each case may require ; but what essentially distinguishes the baths of Loèche, and gives to this regimen a peculiar physiognomy, is the manner of bathing.

Imagine a saloon, or rather several contiguous saloons, in which the company meet, where ladies and gentlemen talk ; small parties amuse themselves at chess or draughts, and others play music or arrange flowers ; in a corner silent old men are watching everybody whilst enjoying their pinch of snuff ; here fresh arrivals greet the company, address their private acquaintances, ask after the health of everyone, talk of the weather, the morning promenades, the aspect of the mountain, Parisian news, &c. All around these rooms there are galleries, where itinerant dealers, Tyrolese singers, and loungers congregate. These latter, leaning over the balustrade, ogle some, call out to others, and by these communications from above with those below add to the confusion these animated saloons at first sight present. Now represent to yourself this pell-mell of men and women of every age, every condition, moving, not in air like ordinary human creatures, but in water mounting to their necks, and you will have some idea of the singular spectacle to be seen at the baths of Loèche.

These baths are, in fact, true water-saloons, where you pass every day several hours in company as in an ordinary drawing-room. No tank in any other thermal establishment presents anything equal to it ; nowhere does the pell-mell rule with so much ease ; you feel that here it is the result of ancient and inveterate habits.

The following fact, of which I was an eye-witness, will show how deep a root this custom has taken in the manners of the country :

A Parisian lady, bearing a name famous in the financial world, was staying at the baths of Loèche. She asked for the favour—of course by paying for it—not to bathe alone, but to have the right of admitting none but ladies to her saloon. This

demand raised many difficulties, but was nevertheless granted ; but soon there was a kind of insurrection against this sort of privilege, and when I arrived at Loèche the country was still in a state of excitement about this infraction of the ancient customs, which it was determined fully to uphold in the future.

The first time the noise of conversation, songs, and music attracted me to the door of the establishment I immediately retired, thinking I had committed some mistake and been guilty of a great indiscretion in attempting to enter the ladies' bath, but those coming out or going in re-assured me. I followed the file and became a witness, not without astonishment, of the scene just described.

This spectacle is really very entertaining, and I was especially much amused at watching the arrival of every bather, making his entrance into these saloons of a new kind, and greeting the amphibious society with that slight awkwardness necessarily produced by moving forward through water.

The entrance into the basins, however, is ingeniously arranged ; there are private dressing-rooms for the bathers, who, when they have put on the prescribed bathing costume—a brown woollen gown—descend into the water, which enters their dressing-rooms, and present themselves in the saloon by passing through a door leading into the tank. In this fashion they arrive there plunged into water up to their necks, and retire in the same way. Thus propriety is strictly observed.

The cases in which the waters of Loèche may successfully be applied are numerous, but they are especially suited to cases of rheumatism, pains of old standing, skin-disease, wounds and old ulcers, in certain congestions, and in cases of impoverished blood and green sickness.

SEA-BATHING.

MODUS OPERANDI OF SEA-BATHS.

Modus Operandi of Sea-Baths.—I have faith in the influence of sun and sea ; I am convinced of the power of this hygienic medicine, which but too frequently fails, because it is resorted to only in extremities, or without giving it time to act. But the case is not the same with these general remedies as with special remedies, which are applied to a special function ; nor is the case the same with shattered constitutions, with organisations deteriorated, vitiated, lymphatic, scrofulous, tuberos, in which the blood is impoverished, the whole economy impregnated with morbid principles, as it is with accidental and limited affections, which attack one organ only without invading the whole system. These can rapidly be combated with appropriate remedies, with a treatment that directly acts on the affected organ. As to the others, they require a totality of conditions acting incessantly, modifying, so to speak, molecule by molecule, all the matter of the organism. The object, indeed, is to restore to the blood the elements it lacks, to cause the secretions of the skin to predominate over those of the glands, to turn aside to the benefit of animal life the fluid which over-excites the nervous system, to renew, in one word, the entire economy. This requires time and prolonged influence of the new medium into which one is placed ; it is not by a temporary or hasty effort that such an effect can be produced.

But what is the practice of persons who determine on quitting the consuming centre of Paris to seek under more favourable skies the reparation of their strength or the healing of their ulcerated organs by the cold dampness of the north ? They

spend a season at a watering-place or the sea-side—that is to say, six weeks—or at the most take refuge at Hyères for a winter ; after which they hasten to re-enter upon the enervating life of towns. What enduring benefit can one expect to derive from these half-measures, which are scarcely sufficient for temporary relief? When by conditions of birth, or your own or accidental circumstances, you are threatened by one of those disorganisations which scarcely stop when once they have begun, if you remain in the place where they arose ; you must hasten, *whenever you can*, to pitch your tent, without counting the months, in a more friendly region. I cannot understand how families fortunate enough to be able at will to choose their own climate and season do not, they or their threatened members, seek the countries where air and sun would restore their health. By doing this in time, early, many existences sacrificed to the north wind, and so cruelly regretted, would be preserved. But for this it is necessary to persevere, and this is the difficulty ; for frequently this is to renounce the moral life, the life of the heart and mind, the enjoyments one prefers, to recover the life of the body ; and is this life worth such a price ? But such is the condition, and those whom it concerns may as well know the sacrifices they must bring.

A year ago I had left on the borders of the Mediterranean, upon a beautiful beach exposed to the full southern sun, in the midst of this atmosphere impregnated with the saline vapour of the ocean, a poor child from an Alpine valley ; brought there by chance, he was very sickly, very weak, very sallow, very lymphatic ; it was almost scrofula combined with cretinism, as so often met with in the gorges of the Alps. I have just seen this child again, strong, robust, tanned by the rays of that ardent sun ; his flesh is firm, his blood vivified by the saline atmosphere ; in fact, he is transformed into one of those lively creatures seen in such numbers with naked feet on the shores of the Mediterranean. And I assure you neither delicate care nor substantial food have performed this miracle. This child lives in a fisherman's hut on the sea-sand. But neither six weeks nor six months were sufficient to fill his constitution with new juices ; he has not left the coast for two years.

To restore a deteriorated constitution, if one season be not enough, try a second ; prolong as much as you can your sojourn in this air saturated with heat and marine emanations, and only return home, to your medium and usual habits, after having renewed and rewarmed your blood.

Combined Action of Sea-Water and Mineral Waters.—

An opinion prevails according to which the use of baths, and especially of sea-baths, is injurious after a course of sulphurous waters and even thermal waters in general ; a sort of incompatibility is said to exist between the action of mineral waters and that of ordinary baths. The medical principles deposited in the human economy by thermal waters taken inwardly or outwardly, are said to need rest to produce their effects ; and hence it is a rule that patients, after having passed through their course, should for a certain time abstain from all kinds of baths, but especially from sea-baths, which under such circumstances are considered dangerous.

I have no intention of disputing this rule, which may be sound in general, but there are exceptions to every rule, and I am not afraid to assert that not only do sulphur-baths not always exclude sea-baths, but that in certain cases the latter assist the former, and that these two remedies supplement each other, as is the case between the different springs of the Pyrénées. In complaints which are faintly characterised and badly defined, which are sent to the baths without possibility of rigorously assigning to them such and such a spring rather than another, for which the waters of Bagnères are suitable, but which would be equally benefited by the waters of Saint-Sauveur or Cauterets, sea-baths often complete what the course of thermal springs has begun, and even certain positive disorders, whose nature is not doubtful, are benefited by sea-water after having been treated in thermal springs.

I will not speak of skin-diseases nor of old wounds, which belong to the exclusive domain of Barèges and its analogues, as chest-diseases belong essentially to Eaux-Bonnes, Saint-Sauveur, and Mont-Dore ; but rheumatism, for instance. This complaint, which seems to fear cold, which is generally com-

bated with heat and perspiration, often yields as much to the reaction of sea-baths as to vapour-baths and sulphur-douches. A young physician of the Pyrénées, whom I met at Biarritz, had successfully applied sea-baths in his own person for rheumatism, from which he had been suffering for several months.

The use of mineral waters and that of sea-baths are related. Far from excluding one another, as was thought hitherto, these two remedies mutually assist each other; they are two great modifiers, which medical science will more and more turn to account in order to act on the human economy, to revive its strength and give tone to its different organs. By means of these stimulants muscular action may be stimulated, the tissues braced up, the skin rendered supple and permeable, and health restored by re-establishing the equilibrium between the animal functions. The influence of climate, exercise in pure air, in the rays of a vivifying sun, add much to the efficacy of these remedies.

In quitting the Pyrénées it is difficult to resist the desire to descend to the shores of that beautiful sea towards which the last hills of the chain gradually slope down. If it be not to finish the cure, it is at least to perfect the enjoyment that, on bidding farewell to the gorges of the Eaux-Bonnes and Eaux-Chaudes, one contemplates the boundless space and setting sun on the beach of Biarritz. What a contrast on issuing from the narrow valleys with confined prospects! How the soul expands at the sight of that immense wavy surface, glowing with light or veiled by a fog, only bounded by the curvature of the earth! How freely you breathe in this atmosphere, where nothing arrests the fluctuations and currents!

Before arriving at Biarritz we pass through Bayonne. Is there a fairer situation than that of this town? It enjoys the two finest prospects nature presents to us—mountains and the sea. On the left-hand side it touches the Pyrénées, and its foot is laved by the ocean. It sees the sun rise behind the Pic du Midi, and in the evening the burning disc of this luminary descends and disappears behind the clear line of the sea's gilt horizon.

I therefore tried sea-baths after having made use of the sulphur-baths and douches of the chief establishments of the Pyrénées, and endeavoured to appreciate their action, not on myself; for, having no occasion to have recourse to these means, I should no doubt have felt them but little, and therefore been unable to judge of their effects. But I had with me a better judge than myself—a sort of thermometer, more sensible than my own organs—a patient, in one word, capable of feeling all the influences of these various agents. Well, I can assert not only that sea-baths, used immediately after the mineral waters of the Pyrénées, had no injurious effects, but actually produced beneficial results.

But then what a fine climate is that of Biarritz, what a warm sun, already giving you a foretaste of the sun of Spain, and what a convenient beach for sea-baths !

SEA-BATHS OF THE BAY OF BISCAY.

Biarritz.—The beach of Biarritz is divided into three distinct parts, the Old Port (*Port Vieux*) forming a small creek, a circumscribed bay between rocks.

You may bathe at Port Vieux without danger; yet it was not without a fright I saw ladies unable to swim abandon themselves to the waves of the strongest tides, simply provided with two bladders that sustained them above the water, and allow themselves to be carried far away from the swimming masters, to distances an experienced swimmer would not always have ventured upon. Nothing, it is true, is more graceful than this manner of floating, and I must do justice to the address and intrepidity of these young women, who, softly resting on the water and borne up by the bladders, use their hands like paddles or oars, to go wherever they please. They give themselves up to this exercise with a confidence which can only proceed from ignorance of danger. Sometimes it would be well to warn them of it.

The other points of the beach are not so well sheltered as the Old Port; on one side there is what is called the coast or bath

of the Basques, and on the other the coast of Fools ; now not a season passes without serious accidents in both localities. During my stay at Biarritz I saw several bathers carried away by the currents, and one of them perish, in spite of the bladders he was provided with, and the speedy succour offered to him by the sailors of the Rescue Society. This Society, founded by some of the inhabitants of Biarritz, renders many services, but greater precautions and more severe warnings are needed to prevent similar disasters. In the interest of humanity and the country it is impossible to take too much care to afford every kind of security to the strangers that flock to Biarritz, and whose number increases every year.

But how can one be drowned a few paces from the shore in the presence of so many people, and under the eyes of sailors ready to come to your assistance, and provided with all the apparatus for saving life ? Persons who do not know the sea cannot understand this ; having no experience of the freaks of the sea, they know not how little is needed to be carried away, and how quickly asphyxia supervenes. It is this ignorance to which so many imprudent acts are due. You see a fine beach, pleasant sands, covered with only a few feet of water, and on which the wavelets are gently broken ; you entrust yourself to this element, brave it even in rough weather, amuse yourself by awaiting the wave you see coming from afar like a moving mountain, and which by its force rolls you upon the sand, where it leaves you dry on retreating ; you yesterday bathed safely on this same spot, and cannot conceive what danger can threaten you to-day.

But the sand on which you repose is shifting, being deplaced day by day by the efforts of the sea, and the perfidious currents existing in the depths of the water are deplaced with it. Such a current, which yesterday was only felt at the distance of a hundred paces, in the interval of two tides has come nearer, and if you fall within it you are carried away. The efforts of the strongest swimmers are sometimes powerless against this force ; what can inexperienced bathers do against it ?

Thus, in less than a month, of four persons who were suc-

coured by the men of the Rescue Society, provided with cords and followed by their boat, two were landed in an unconscious state; one of them could not be recalled to life, in spite of the unremitting and intelligent cares bestowed on him, and the other remained ill a long time from the effects of partial suffocation.

SEA-BATHS OF THE MEDITERRANEAN.

A Wish to be Realised.—Montpellier is a town highly interesting on account of its history, its scientific and literary establishments, its climate and rich and select society; but for a lover of the country, the walker who likes to exercise his body whilst diverting his mind, it is the country of Tantalus, full of distant allurements, which cannot be reached without undertaking real journeys, incompatible with the ordinary occupations of life.

I know of no more magnificent tableau than the one which is displayed before my eyes, when from the promenade of Peyrou I look on the one side on the chain of the Cévennes, whose summits are covered with glittering snow, against which the dark profile of the peak Saint-Loup stands out boldly; on the other on the sea, which exercises upon us a sort of magnetic attraction, by plunging our soul into the depths of the infinite; to the east Mount Ventoux, the last bulwark of the Alps, and to the west Canigou, this advanced sentinel of the Pyrénées, which occasionally so distinctly shows its rounded hill-tops in the burning rays of the setting sun. The Cévennes, the sea, the Alps and Pyrénées, these may suffice to satisfy the most ambitious and roving imagination; in the centre of such a tableau, of a magnificent panorama, there seems nothing to do but to choose and hasten on towards one of the points of the horizon to enjoy all the splendours of nature—the freshness of the mountain valleys, the pure and invigorating air of the summits of these picturesque rocks, or to play with the waves of that sea which glitters beneath that beautiful sun, and whose foam traces along the coast a winding and silvery band.

But unfortunately all this is only a beautiful horizon, a canvas, a picture, whose colours and subject tempt and invite you ; but if you wish to go up close to it, it seems to recede and that you will never reach it. All this, in fact, is very far off, and the road leading thither is not attractive. This rich champaign, glowing with light, offers you no shelter either under pale olive-trees, nor cool resting-places by the side of some clear brook, flowing through some grassy meadow ; there is nothing but dust or naked rocks on the one side, and on the other boundless swamps, which must be crossed along dusty roads in order to reach the sea. It is the country of Tantalus, I repeat ; you experience every kind of temptation without being able to satisfy any ; your mind gets excited and your legs itch—may I be forgiven the expression—but you must subdue this agitation, quench all the fire which you cannot supply with its proper fuel.

Ah ! if the sea were only within our reach, if we could go to it every day when business is done, greet it before dinner, contemplate its monotonous yet ever-changing physiognomy ! Give me the sea at the port of Juvenal, and I shall no longer say anything about Montpellier. How is it there is not even a railway to connect Montpellier with the sea ? Will it be believed that on that beautiful shore of the Mediterranean, extending from Port Vendres to Toulon, on which the sun darts its fires during four months of the year, there is not a single decently comfortable bathing establishment ?

Montpellier is a therapeutic locality, to which strangers flock in winter, attracted by the beauty of its climate and its illustrious Faculty of Medicine.

Russians, Swedes, Norwegians, Dutch, flying from the rigours of their several climates, arrive there in crowds every year, to enjoy the advantages of its sun and medical celebrities. Its large and beautiful hotels no longer suffice for the ever increasing number of travellers ; but when summer arrives everybody runs away, and the town is deserted. And yet close by is the finest basin in the world for sea-baths—water always pure and warm, always within reach, not subject to the caprices of tidal

ebb and flow, into which you may plunge at any time, and which never recedes far from the shore's soft and burning sands, on which you may walk without fear, which gently and insensibly slope down towards the sea, and which warm the body when you leave the waves. What an invaluable remedy for pain are these baths of hot sand, which penetrate the skin and restore suppleness and vigour to worn-out and rheumatic limbs !

But where is one to settle down on this deserted coast ? You only encounter poor fishermen's huts, into which you must bring all the necessaries of life, even your mattress, kitchen utensils and provisions. Assuredly, if there existed on one of the points of this coast, and particularly near Montpellier, a good sea-bathing establishment, Montpellier would have its summer as well as its winter season.

We have faith in the fortunes of the ancient school which has so long borne the sceptre of medical science ; we think it still able to wrestle with the ambitious rival that seeks to deprive it of this honour ; it maintains itself firmly between the two rocks ahead—exclusive attachment to its doctrines or their total abandonment. We flatter ourselves that the administrators of the town will at last understand that its most beautiful jewel is its medical faculty, that its glory is bound up with that of the illustrious families whose portraits adorn the halls of its school, and that the ruin of its hospitals, clinical teaching, and anatomical studies would be the ruin of its honour and scientific credit throughout Europe.

It seems inexplicable that the physicians of this locality, whose real practice is among strangers, the hotel-keepers, who are idle during summer, and lastly the town of Montpellier, of which these strangers are the fortune, do not combine to found an establishment to which people would flock from one half of France, even from Paris and northern provinces, thanks to railways. There is much talk, fine projects are discussed ; we can only hope that something at last may be carried out ! It is the necessary complement to the town of Montpellier ; this, if I may so express it, is its true industry, for it is not suitable

for commerce in its proper sense, and in this respect Nîmes and Cette, its neighbours and rivals, would always beat it. Let them think seriously about it; the future of this district is at stake: if nothing is done for the comfort of strangers to attract and secure them for the summer, the current will go elsewhere, and the English are already moving towards Nice and its neighbourhood, where they build splendid villas.

But, it will be asked, are Mediterranean baths not about the same as ocean-baths? Granted that the water of the Mediterranean be a little more salt than that of the ocean, this is no important difference, and the waters of the two seas probably act in the same manner.

The essential difference consists in the climate and the absence of tides.

The ocean, in spite of its grand aspect and stirring scenes, Dieppe, Boulogne, and Trouville, with their short summer and rare warm and fine days, Biarritz itself, with its picturesque and diversified coast, could not rival this well-warmed coast, with its sands where not a pebble threatens the foot, and to which you may descend in your dressing-gown at all hours of the day during four months of the year—June, July, August, and September—with a constant sun and days without rain. Here is a length of time which enables you to undertake a prolonged treatment without compulsory interruptions, and therefore efficacious. What an excellent bath I had on October 1 in this favoured sea! How many times, on the contrary, is the short season on the shores of the ocean not reduced to a few propitious weeks—nay, to a few days only!

SEA-BATHS AT MARSEILLES.

What we have said concerning sea-baths at Montpellier also applies to Marseilles.

The climate allows baths to be taken earlier in the Mediterranean, and to be continued for a longer period under a southern sun, than on most points of our vast western coasts, and the sun itself is a powerful agent, calculated to modify the

weak and lymphatic constitutions of the north. The skin, under the warm ardour of the Italian sun, assumes colour, tone, and vigour, and acts energetically; the lymphatic system and the glands impregnated with whitish fluids are braced up and cleared to the advantage of the blood, which becomes richer and more generous. The effect of sea-bathing is seconded by the tonic action of baths of air and sun; this air, charged with saline particles, freely inhaled on the borders of the sea, these emanations of an ardent sun, which imparts so great a degree of activity to all nature, reanimate impaired and weakened constitutions. Are not a little sun and water in these rich countries sufficient to give to the soil an inexhaustible fertility?

Fortunate Marseilles is destined in this respect to play the part it plays with regard to maritime expeditions. The day is not far distant when from one moiety of France, if not from the whole country, people will come to seek the succour of its climate, its sun and water. The Mediterranean, by means of its southern position, is called upon to have large sea-bathing establishments; and where could they be better placed than at Marseilles, on this coast which extends from Hyères to Port Vendres? Is it not at Marseilles that the roads of rapid communication that connect it with the centre of France converge and terminate? What a current is already setting in towards that flourishing city, to whose good fortune no bounds can be prescribed! And since half France is within a few hours from that beautiful sea, since you may go there in one day from the most distant points, I do not see how the northern coast, with its severe climate, can keep the monopoly of sea-baths.

The ocean, the sea of great phenomena, the real sea, will undoubtedly keep its bathers. They will not give up those beautiful shores, the enjoyments and benefits of its foaming plain, but those needing sun and warmth together with sea-baths will go to Marseilles. What an attraction, moreover, is that city itself, this world in miniature, to which flock the most varied and accentuated types of the human species! Foreseeing its grand destinies, Marseilles has extended on land and sea; it has invaded its rocks, or rather has caused them to leap into

the sea, to construct from their ruins and in their places elegant buildings ; it has opposed new barriers to the waves in its port of Joliette ; it has transported its quarantine to Ratonneau. But all this is nothing as yet ; it has transformed its dirty fields into verdant and fertile land.

Marseilles no longer is that parched-up coast which to our eyes, accustomed to the green landscapes of the north, offers a burning and sad aspect. This country, formerly without water, is irrigated, and running fountains give freshness to all the streets of Marseilles ; water is flowing on all sides ; it escapes and meets you at every turn, skilfully imprisoned and distributed through thousands of pipes. Marseilles is one of the best watered towns in France. How different from the days when it was necessary to place a sentinel by the side of the only jet that supplied the town in summer !

But how has this marvel been brought about ? What Moses struck the rock to water this arid ground and quench the thirst of all this people ? For, I repeat, it is not only in the town, but in the country several leagues round, that water circulates through a thousand channels.

An engineer, resolute and confident in his art, proposed to go and draw from the Durance, at a distance of ten leagues, not a thread of water, but a whole river, and to bring it by a thousand windings across the rocks and the belt of mountains which surround Marseilles even into the smallest gardens of its innumerable villas. The evidences of engineering skill in this extensive work, which starts from the Durance and ends at Marseilles, are to be counted by hundreds. It is interesting to follow this artificial river, winding now over summits of diversified form, now passing along an aqueduct, now disappearing in a tunnel ; it seems to climb up the heights and rush across the valleys. Of all these works of art the most important is the aqueduct of Roquefavour, a third higher and longer than the famous bridge of the Gard, but beside which this latter still retains its air of grandeur and majesty. Roquefavour is the product of modern science ; the bridge of Gard is the work of ancient art.

I return to sea-bathing, which I have not left so far behind as might seem. A physician, in fact, could not send patients to a country deprived of fresh and wholesome water, and to me Marseilles is only a truly medicinal region since it has been irrigated and rendered green. To-day it lacks nothing : for three or four months the sea, warmed by a changeless sun, offers its bosom to bathers. On June 1 of this year I plunged into it with a sensation of delight, whilst people were yet shivering on the borders of the ocean.

The absence of tides imparts to the Mediterranean a physiognomy totally distinct from that of the ocean ; the very baths and the manner of taking them are different. Here the hours of bathing do not depend on the return of the tide ; the sea is always present ; you may choose your moment and bathe at any hour of the day. Instead of waiting for the wave, which comes up to you from afar like a liquid mountain, flowing over your back and rolling you on the sand, you bathe in the Mediterranean as in a lake when the sea is calm, or you are incessantly tossed to and fro when the sea is slightly agitated. Is the one preferable to the other ? I know not. As for me, I prefer the grand movement of the tide, which seems to me to impart life to the sea. When you are accustomed to the tide the sea without it appears inanimate ; still it must be admitted that it is convenient to have it always within reach, and not to be obliged now to seek it afar off on the beach, now to wait for it at an unseasonable hour.

Here sea-baths are taken in a manner different from ocean-baths ; swimming is almost a necessary part of them, for to benefit by them it is requisite to launch forth amongst the waves.

Such a practice under this beautiful sky, with this sun, that enters into and does not even allow you to feel the shiver usual on issuing from the water, is it not the best gymnastic exercise ? And the salt with which you are impregnated, is it not an excellent stimulant for the organism ? How many rickety children, how many feeble young men and girls, would not be reinvigorated by such a life !

Sea-baths are taken at Marseilles at two points chiefly—at the Prado and the Catalans. The view is very fine at Biarritz ; from the top of the rocks, undermined by the sea, the eye overlooks the infinite solitude of the ocean, and the mind is only seldom distracted by the sight of a vessel crossing the horizon, or of a few fishing-smacks leaving Port Vieux. This somewhat melancholy spectacle is not that presented to you from the magnificent promenade of the Prado, or the sea-beaten rocks of Notre Dame de la Garde ; the watery expanse is animated by continually moving objects ; vessels of every kind, steamers and sailers, arrive at every instant from different points of the horizon ; the traffic, so to speak, is as great as that of a busy town ; those that come and those that go cross each other in all directions, and the atmosphere is riven by long pennons of smoke left behind them by steamboats starting for Italy, the Levant, Greece, or Africa, or arriving from those regions. Such at least is the case when the state of the country inspires the navigator with confidence. The port of Marseilles, we say, floats at the mercy of the telegraph : according to the news from Paris activity recommences, grows, slacks, or stops altogether.

On the Mediterranean the establishment of baths can be stationary and immovable ; the inconstancy of the sea does not oblige you to run after it every day, and to carry huts or tents after it, more or less far out on the sands, according to the state of the tides. Wherefore also at Catalans, as at Naples, the baths consist of buildings solidly constructed in the sea ; every bather has his private room, where he may instal himself as in a bathing-house, and receive the waves without disturbing himself ; or he plunges into the sea and swims as far as his strength will allow him.

A few leagues from Marseilles you touch on Italy, and by a peculiar conformation of the ground, and the shelter it affords, you almost enjoy the climate of Africa ; it is at least already the region of orange and palm trees. From Toulon to Hyères, in those creeks bathed by the sea or on some of those sheltered promontories, you may at all times live on air and sun

and take care of your lungs without remaining shut up in a dark room near a scorching fire. Ask your doctor whether he does not think it would be beneficial under some circumstances to live for a time like a lizard on a rock of the roadstead of Toulon in the shadow of a palm-tree?

Close to Marseilles, not far from the islands of Or and the orange-gardens of Hyères, you may, in case of need, meet with precious mineral springs.¹

¹ See *ante*, *Mineral Waters of Provence*, p. 165.

HYDROPATHY.

FIRSTLY, what are the conditions of a good hydropathic treatment, and are these conditions to be found everywhere? In other words, is the first water that comes to hand fit for the purpose, and is it sufficient to subject patients to aspersions or immersions into water having the temperature of the outer air? In fact, is cold water wanted—very cold water, colder than that of the springs and wells you generally meet with, and whose temperature is not below the mean temperature of the locality? Thus, is the water of the Seine at Paris whose temperature varies from zero to more than twenty degrees, according to the season; that of wells or springs which cannot be under ten degrees, this figure representing about the mean temperature of Paris, fit for hydropathic purposes? Well, no; Seine water or any other flowing water, in consequence of its variable temperature, as it may freeze in winter and become almost tepid in summer, is unfit for the purposes of hydropathy and the effects it is to produce. The first condition of this treatment is to have water of nearly constant temperature, or one does not know what one is doing, and the patients may be subjected to unexpected reactions. The water must also at least be fresh, and for this reason must come from springs or wells, and the degree of freshness will depend on the mean temperature of the locality, for it is this mean which regulates the degree of cold that may be encountered in digging into the earth. If this mean is ten degrees at Paris, it is at least fourteen at Montpellier, and this is the reason good cellars or very cool wells are difficult to be met with in the south. Now water of fourteen degrees is not cold enough to produce the energetic action to be spoken of hereafter, and on which the hydropathic

cure is founded. What, then, becomes of it when, as we have seen, it is attempted with water at eighteen or twenty degrees?

It is not generally suspected in the world that the first question, the first difficulty, is to obtain cold water; people fancy that cold water exists everywhere, that nothing is more common, and that it suffices to seek it at a certain depth in the soil to obtain an inexhaustible stock. The water of springs and wells is undoubtedly relatively cool, especially when the weather is warm; but this freshness is not sufficiently strong to excite the skin, as seems necessary to us in hydropathic treatment.

But, in fine, are these cool—nay, cold—sources so scarce, and are there not frequently found some whose water is below the degree of what we call mean temperature? Such is the general opinion, but it is erroneous; this freshness is only relative; take an accurate thermometer, plunge it into the water, and you will see that most of these sources, of these wells, which are thought to be icy, mark more than ten degrees above zero. Not only are cold springs colder than the mean temperature of the locality scarce, but they are only found under special conditions, and their origin is obscure, difficult to be understood, and science has not yet pronounced its final decision upon them. As much as hot springs are common in certain regions, as much as their origin is clear and their degrees corresponding with the depths from which they issue, just so much cold springs are rare, far from glaciers and eternal snows, and their explanation as yet full of difficulty. This arises from there being but one point below the soil where the temperature is at its lowest and stationary degree, and this degree, once more, is that of the mean temperature of the locality. Beyond this point the temperature rises and goes on increasing in consequence of the action of the central heat; above, and nearer the surface, the temperature changes like that of the outer air. And what is worse for therapeutic application is, that whilst we can easily heat water, we have no means of cooling it except with ice, natural or artificial, an expensive and not commonly applicable proceeding.

You see then that, wishing thoroughly to study hydropathy, I was obliged to seek a spot combining the three following conditions: a spring very cold, very abundant and with a stationary temperature; this, with other advantages, I found at the establishment of Divonne, in the Department of Ain, between the eastern slope of the Jura and the Lake of Geneva. Several springs, whose meeting forms a stream joining that of the mountain, supply the tanks and apparatus I am about to describe; this water issues from the earth, effervescing like seltzer-water, and its almost invariable temperature is eight degrees centigrade.¹

The coldest water of this locality is that of the spring Napoléon, situated half-way on the road crossing the Jura by the pass of Faucille; its temperature is 7·8°.

How can we explain this low temperature of the springs of Divonne? I do not exactly know the mean temperature of the locality, but that of Geneva being 9·16°, I do not think that at a hundred mètres higher up, which is the elevation of Divonne, it is much below that figure, saving the influence of local circumstances, like the neighbourhood of mountains covered with snow during a part of the year. Eight degrees centigrade, the usual and constant temperature of the springs of Divonne, are, therefore, a temperature probably below the mean of the coun-

¹ Degrees tested at different periods, and with very varying exterior temperatures:

June 10.	First spring	.	.	.	.	.	.	8°
	Second spring	.	.	.	.	.	.	8·1°
	Spring of the Swan	.	.	.	.	.	.	8·1°
	Tank for men	.	.	.	.	.	.	8·2°
	Tank for women	.	.	.	.	.	.	8·3°
	Douches	.	.	.	.	.	.	9·4°
	Water of the stream of the children of the mountain	.	.	.	.	.	.	9·1°
June 23.	Spring	.	.	.	.	.	.	8·5°
	Tank	.	.	.	.	.	.	8·5°
	Water of the stream	.	.	.	.	.	.	10°
July 15.	Spring	.	.	.	.	.	.	8·1°
	Tank	.	.	.	.	.	.	8·3°
	Water of the stream	.	.	.	.	.	.	10°

try. Whence this excess of cold? According to all appearance it can only be attributed to a slow infiltration of snow-water, though snow does not remain all the year round on the summits of the chain of the Jura. This year, when snow was abundant, no trace was left of it in the month of June; but perhaps there are fissures in which it accumulates, and the melting of these deposits, by which the soil is widely penetrated, probably suffices to maintain the subterranean waters at a low temperature.

It must be admitted that this explanation is only a plausible theory, and not a demonstration; and this theory is moreover applied with difficulty only to other facts of the same nature still more striking.

It is known, for instance, that the cellars in which Roquefort cheese is made, this singular locality described in a former part of this work, are icy cold, and that the quality of this particular cheese, which can be manufactured nowhere else, is due to a continual current of cold and dry air blowing from the bowels of the earth. The temperature of these non-subterranean cellars, which are built against the vertical face of the rock, full of fissures whence the air issues, is moist, and at four degrees centigrade above zero; a spring, also flowing from the rock, has the same temperature, which is constant, as has been verified repeatedly and at different periods of the year by J. E. Bérard, Dean of the Medical Faculty of Montpellier. What can maintain this cold in a locality whose mean temperature is at least twelve degrees, and distant a hundred leagues from the eternal snow and ice of high mountains? Arago could only explain it by supposing in the interior of the plateau of Larzac, which commands the whole country, the existence of a vast and profound lake, whose bottom had a temperature of four degrees, as all large lakes have. This requires some details.

The maximum density of water—that is to say, the point where it is heaviest with the same volume—is exactly four degrees above zero. When the water gets colder, it becomes lighter and mounts to the surface. It is known that ice fortunately—I ought to say providentially—is lighter than water, which causes it to float on our rivers, instead of accumulating indefinitely at

the bottom, where it is formed. If, therefore, at any particular moment the temperature of the water of a large and deep lake is lowered to four degrees above zero, the strata of water, in consequence of their weight, descend to the bottom in proportion as they reach that degree, and, once there, stir no longer, and their temperature becomes constant ; for, the lake being very deep, the exterior temperature acts no longer through the great depth of water. If, moreover, by any cause whatever, the temperature at the bottom could vary, and get below four degrees, or rise above it, the strata of water would rise again to the surface, since above or below four degrees they are lighter than at any other temperature, and would be replaced by other strata at four degrees. For this reason De Saussure always found four degrees at the bottom of the Lake of Geneva, which excited his astonishment, until the simple theory of this phenomenon, which we have just expounded, was perfectly established.

Returning, therefore, now to the cellars of Roquefort, if with Arago we admit the existence of a large lake in the interior of Larzac, it will be quite simple to understand that a small stream of water, proceeding from the bottom of this lake, may prevent the thermometer from rising above four degrees. But there is the circumstance of the cold and *dry* air, which blows into these cellars ; this air is so *dry* that it will not even moisten salt, which so easily liquefies. Arago, then, said that a current of air introduced by some opening into the heart of the mountain was cooled by coming in contact with the sides of these immense cavities, without becoming charged with moisture, and issued through the fissures of the cellars at the temperature mentioned above.

But here are a number of suppositions, and there is nothing to demonstrate the existence of this great subterranean lake.

And what can next be said concerning that other spring pointed out by Professor Ch. Martins,¹ less than two hundred mètres from the top of Mount Ventoux, which indicates only

¹ Ch. Martins, *Du Spitzberg au Sahara*. Paris, 1866, p. 390.

five degrees and a half? It is impossible to assume a large collection of waters in the heart of Mount Ventoux. Its geological construction does not allow of it. It is true that at this height of about 1,800 mètres the mean temperature scarcely rises above two or three degrees. Yet is it not much more probable that the low temperature of the spring we speak of must be attributed to accumulations of snow in cavities, or a kind of funnels, such as are found in many mountains, and the slow and gradual melting of this snow, and the infiltration resulting from it? Mount Ventoux does not remain covered with snow all the year round, but may retain portions of it in its interior, and its mass may, so to speak, be impregnated with melted snow. The plateau of Larzac, which is of great extent, at least ten leagues in every direction, receives a rather large quantity of snow during winter. The same mechanism as that which acts in glaciers may be produced by means of fissures and cavities. The same theory applies still more easily to the springs which rise at the very foot of the Jura, and the low temperature of June and July shown in our Table would seem to confirm it. It appears, nevertheless, that cold springs are at once interesting and perplexing, two things which go well enough together.

Let us now proceed to the therapeutic application of cold water, hydropathy properly so called.

I began by trying on myself the effect of these rapid changes from hot to cold, and from cold to hot.

To the human body water at eight degrees is icy. On plunging into the tank you know not whether you feel the action of cold water or of fire; the skin is contracted, pricked, as if beaten with a bunch of nettles; one cannot, I say, one ought not, to remain in it longer than two minutes; though quite accustomed to water, and cold water, I never could attain that limit. You rush out of it as out of a furnace, and cause yourself to be rubbed with a coarse cloth—I ought to say, rubbed down like a horse covered with foam. Warmth quickly and briskly returns to the surface; you assist it by exercise if you are strong enough, or by blankets and friction in bed if you

are unable to walk, which is often the case in the complaints for which hydropathy is resorted to.

I will not describe all the methods of administering cold water, in tanks, douches of all sorts, the various degrees of strength and volume, all the modes of reaction, in dry and wet packing, though these are the points they excel in at Divonne, thanks to perfect arrangements and the skill of the male and female attendants, composing a personnel of more than thirty individuals. I shall return to this subject with reference to some patients and certain results I wish to quote, but for the present I prefer studying the physiological phenomena of this method.

The first effect of a few good plunges into the tank, and vigorous rubbings after them, is a feeling of warmth and well-being, of expansion of the whole body, which seems to reanimate the action of the vital principle. Wherefore also, after a week of this treatment, I jokingly wrote to my friends that I was in the way of being regenerated, that so far I had returned to 1848, but hoped to go back to the Restoration. What is singular is that you do not even catch cold with these sudden coolings, these plunges into icy water, whilst you are still quite damp from the moisture of the bed. But there is no lowering of temperature in the fatal sense of the term : the body has no time to lose its warmth ; it is vehemently impressed ; you give it a violent shock, you whip the skin with cold water as you might with pins, but the cooling does not extend beyond the epidermis, and the blood soon rushes to the surface under the hands of the doucheur.

Not only do you not catch cold, but cure a beginning cold. This occurred to me with a slight bronchitis which I had brought back from Paris, and this is what was written to me by a lady patient, very delicate in this respect, and you will find this simple account from a woman of the world, without system and preconceived notions, altogether worthy of the attention of an observer :

‘The day before yesterday I caught a cold and returned home with it and a whole host of petty pains. I had much

trouble to get warm, and sneezed almost enough to kill myself. At night I was very hot, with a slight perspiration in the morning, always sneezing. What was to be done? I deliberate an instant with myself, even ask myself whether to send for advice ; then, thinking that general advice suffices for an individual case, I decided of my own accord, and went to the tank, intentionally bold, but physically shivering. I had scarcely plunged in when I was satisfied, and scarcely out when I felt myself gay and lively, and my cold gone. This instantaneous result filled me with wonder.'

Not only do the most delicate ladies, as well as men, easily accustom themselves to this regimen of icy water, which seems rather rough and at which the imagination is frightened, but people grow very fond of these cold baths, these douches, which are administered sometimes in columns, sometimes in finer streams, and sometimes as fine rain, which surrounds the whole body. This latter is the douche in a circle, which patients call douche 'in crinoline,' to give it a name corresponding with its elegance.

Ladies especially, and the most delicate, are anxious to plunge into the tanks as if by instinct, and also from the real feeling of the comfort they experience, the tone and quiet these immersions impart to their shaken nerves. I cannot do better than again to quote passages from letters written by invalids ; this is worth more than all we physicians could say. Here are the words of a lady who has not much liking for the heavy douches, but adores the 'crinoline :'

' . . . and the surprise the doctor had in store for me? It was the circular douche—a love of a douche—the most elegant invention—a luxury ! It is not cold at all ; a gentle water, a dew that caresses you like a feather-broom or fox's tail. I would with pleasure bear half an hour's similar douche in winter ; in summer it would be too mild. This comparison made me feel all the more the horrors of the columnar douche upon a poor little body like myself. Thus, in starting, I put among my luggage the tanks, the circular douches, Joseph and Mariette ; that is settled. . . .'

The attendants at Divonne are truly skilful ; this is as they speak of them with respect to the packing, which is also worthy of description :

‘ Joseph (the head doucheur), the doctor’s right hand, is admirable for his zeal, gentleness, care, and womanly tenderness, less a woman’s nervous and fidgetty eagerness. Yesterday I tried packing in order to sleep ; I did not sleep, but was calm, with a kind of well-being, in spite of my want of sleep. . . .

‘ I went to the packing with eagerness and confidence, as I went to the tank ; besides it is not too hard. But what a packing ! It ought to be seen and painted. Mariette excels in it. Joséphine, delighted with the novelty and the effect, absolutely wanted me to look at myself in a glass. In less than no time you are wrapped up in the wet cloth, two blankets, a calico cover, an eider-down, and yet another cover, all closely pressed together, fitted to the outline of the body ; you cannot stir either hand or foot. You are quickly hot, and then they hurry you to the tank. The effect is beneficent, calming.’

Here, then, is a powerful, energetic, varied remedy, whose physiological effects can afford us a glimpse of the therapeutic influence.

How can we turn to account this remedy, this application of cold water in all these forms and different degrees of intensity, and in combining its action with the most sudden transitions of temperature, followed by reactions which positively carry warmth to the exterior, reanimate the functions of the skin, strengthen the nerves, and give tone to the muscles ?

I shall not repeat all I have heard of the marvellous cures performed by hydropathy, but will only speak of what I have seen, what I could follow, so as to verify the results of the treatment ; the number of facts is but small, yet conclusive.

At Divonne I have seen paralysed and nervous suffering of all kinds—melancholia, scrofula, exhaustion of the nervous system in consequence of excessive labour or the fatigues of fashionable life, complaints of the locomotive functions, spasms and fainting fits caused by excitement, shocks to the brain or spinal marrow, &c. The following appeared to me the most striking :

The victim of a railway accident, after the healing of her wounds, and apparent restoration of her health, remained excessively weak, without any symptom of paralysis; the weakness was accompanied from time to time by languor amounting almost to fainting fits. At the accident there had been a commotion of the nervous centres, since there had been loss of consciousness; and, while the muscular system was weakened, the power of attention and capacity for sustained labour were diminished; there was even slight loss of memory. The patient herself writes thus concerning her condition:

‘. . . . I no longer faint; storms worry me as much as ever, but I no longer become unconscious. This is considerable progress, for storms always threw me into a swoon.’

As to mental work and sustained attention, the effect of the treatment was no less marked.

‘It is a great enjoyment to me to be able to read without an effort, with relish and understanding, with a natural attention, and following the thread of ideas without exerting myself. For a long time I had been deprived of this pleasure, either by illness or the dissipated life of towns; I recover it with infinite enjoyment, and find with no less pleasure that I am still able to read easily and to understand what I read. Latterly I have lost much of my stupidity; the time lost to the legs is not always so to the better part of our being. I have therefore passed this day of rain and captivity in the most pleasant manner; the hours appeared short, and I enjoyed in my fashion the pleasures of home, the liberty not to be associated with them. When I am well ensconced in my easy chair near the window, my table and chairs well covered with books, letters, pens, and paper, I enjoy a pleasure I do not actively partake of, as of the rain and wind from which I am sheltered at the chimney corner. My favourite book at the present time is M. Sainte-Beuve’s “Châteaubriand.” The farther I proceed the more I am delighted by the work. I know of no one who better seizes the subject in question; nothing escapes his piercing glance, resembling the microscope, for which a drop of water, a grain of dust, contain whole worlds and have no secrets. You

can scarcely lay aside the book ; it carries the mind along with it, feeds and fills it, and reading it directly after or at the same time as Châteaubriand himself increases the interest. Yesterday I read for more than three hours in this garden ; this evening I returned to it, in spite of the promise I had made to myself to read something else.'

This passage, in my opinion, well deserves a medical observation, and is not less instructive.

Let us now see concerning the recovery of strength. At first it was necessary to plunge the patient into the tank by means of a fauteuil and windlass ; at the end of two months she writes :

'I descend unaided into my dear tank, and go three or four times its whole length, taking a number of plunges head foremost. It is only beneficial in my opinion in this way : the head has not even a painful feeling to experience ; it is all pleasure all at once. On Tuesday I had a considerable extra. I dined at the table, and afterwards attended a lecture by M. Vidart, the physician of the establishment, in the drawing-room. He possesses true talent ; he alone is worth a host ; and all this so naturally, so easily, that one does not think he is exerting himself to please or that it costs him any trouble. The moral part of our nature is here as much cared for as the physical, and it must be admitted that M. and Mdme. Vidart willingly and zealously give themselves up to their task. They are ingenious, amiable, and natural in their parts—in my opinion the most difficult of their duties.'

Wherefore also Divonne is crowded.

'There are battles here every day to obtain a corner in a barn. The day before yesterday a lady was delighted to get a closet by the side of my maid, and not more comfortable ; the husband and daughter of this lady are in the village, and a nurse with a little child somewhere in a barn or garret. Yesterday six persons and twenty-five trunks had to put up with four small rooms on the second floor ; and, be it well understood, this accommodation had been secured beforehand.'

Let us pass on to other cases.

When I arrived at Divonne, at the beginning of April, the country was still covered with snow; the mountains of Switzerland and chain of the Jura still wore their white cloaks. This, they say, is the favourable moment for hydropathic treatment: spring and autumn are the best seasons.

I there found a boy about twelve years old, lively and intelligent; he suffered from a disorder very painful to himself and others: he barked incessantly like a dog and with convulsive efforts. The régime of douche and tank did marvels for him; in two months the cough became much milder, being softened down to the yelping of a young pug-dog; soon it was nothing more than a slight breathing or panting which interrupted the monotony of speech; finally every trace of this singular complaint disappeared, and the child at the same time grew stronger, assumed the colour of health, developed its frame, and grew. This is the finest cure whose progress I have been able to follow, and whose success I can bear witness to.

The restoration of shattered constitutions, hypochondriacs interesting themselves again in the pursuits of life, young and pallid girls gaining blood and growing strong on their legs, neuralgic pains disappearing—these are the changes generally witnessed at Divonne. I have left in the course of cure and improvement paralytic complaints in the inferior limbs in consequence of disturbance in the functions of the spinal marrow.

But let this suffice, for I cannot here write a treatise on the hydropathic treatment; I only wished to indicate the essential conditions of this method, its most striking effects, and show with many others that there is in it an efficacious remedy which medical science may turn to account.

Need I add that this treatment ought to be directed by an experienced and wise physician, no stickler for systems, one who knows how to take advantage of the instincts of patients; and that this treatment ought to be accompanied by a good alimentary regimen, as much exercise as possible, life in the open air, and in some cases even gymnastics? This is what is

found at Divonne, where everything is well and intelligently arranged without meanness and petty economy.

The village of Divonne is not handsome ; it has none of the charm and coquetry of Swiss villages, no elegant villas, no pretty châteaux, but is excellently well situated for promenades and picturesque excursions.

Is there anything more enchanting than the borders of the Lake of Geneva, this grand park fifteen leagues long by ten leagues wide, with its peaceful habitations so well ensconced in their groves of verdure, where peace and happiness seem to have their home ? Its beautiful towns of Nyon, Lausanne, and Vevey, and the lake for a sheet of water ; here are promenades for every day, on foot, on horseback, in carriages, through the loveliest roads shaded by gigantic walnut-trees, chestnut-trees, and poplars, here and there broken by the greenest valleys, and with a horizon formed of the snowy peaks of the Alps, lying at the foot of their king, Mont Blanc.

And if you wish to make longer excursions, the Swiss railways, whose station is at a distance of six kilomètres [rather more than three English miles], at the castle of Coppet, will in a few hours carry you to every point, the most famous or most picturesque spots in the very heart of that region, which will ever be the admiration of poets and lovers of nature.

FEVER.

FEVER plays a great part in the region we inhabit; it forms a part of the medical constitution of the country, and you are compelled to be on the watch against this enemy, who so often renders the diseases we have to treat so complicated. I speak, you understand, of periodic fever, with regular fits—intermittent fever, in fact, which all at once may assume a malignant, dangerous, and fatal character. This fever, formerly scarcely known at Paris, instances of which were but seldom seen in the hospitals at the time when I was a student, and which could only be learnt from books, is so common in the neighbourhood of the shores of the Mediterranean, that you are incessantly armed with quinine to combat it, even in cases where it disguises itself under the appearance of symptoms foreign to it. One of the Faculty, Professor Fonssagrives, told me that here there was more consumption of quinine than at Senegal, this privileged region of dangerous attacks. Perhaps the remedy is abused, physicians meeting the danger for fear of being taken by surprise.

According to the prevailing doctrine the cause of this disease is miasma—that is to say, due to the exhalations of unwholesome marshes—it is a poisoning, whose counter-poison is quinine. Hence Paris was formerly free from this *intoxication*, which only appeared as the consequence of those great disturbances of the earth which caused exhalations, analogous to those of marshes, to issue from the soil; the appearance of this morbid form, which since then has greatly increased, is said to date from the time of the works of fortification.

It cannot be doubted that this is their principal and most general cause, and facts abound in favour of this theory. It is known to be sufficient to disturb a virgin soil to see the de-

velopment of intermittent fevers, as so frequently happens in Africa, and the morbid germ is only exhausted or annihilated when several generations of human beings have passed over that soil; thus also in the inverse ratio of other epidemic maladies, it is isolated and least frequented spots which are more than others poisoned, and the disorder is less virulent the greater the concourse of human beings. Certain places in Algiers may be cited as spots of mortal infection, which have become the healthiest localities since populous towns have arisen on several layers of human remains. Without leaving our south, statistics have demonstrated that the mean of the duration of human life is much lower in scattered villages not far from the sea, in the midst of marshes, than at a few leagues' distance, upon a high or hilly soil, and fever alone is the agent in this premature destruction.

But is the course here pointed out the only one that determines attacks of periodic fevers? This is a question I have often discussed. I go every summer to the sea-side, crossing the marshes which unfortunately defend the approaches to the beautiful Mediterranean in the neighbourhood of Montpellier, and that no member of my family, young or old, has ever experienced the influence of this reputedly unwholesome region; it is true we made no stay in it, never slept there, and that after having taken our bath we returned to the town. This is no reason why it would not be desirable to connect Montpellier with the sea by means of a good road across the vineyards, extending on one side to the sea, and leaving the marshes far on one side. It is inconceivable how a town like Montpellier, only ten kilômètres from the sea, can be without a single carriage-road to reach it, without crossing, on the one side, noisome swamps, and being subject to a toll of thirty *sous*, and, on the other, without being obliged, for want of a bridge over the canal, to put invalids who are going to take their baths into boats.¹

I had a patient who having taken her sea-baths all last summer without suffering any injury, I took her to Bayonne

¹ See *ante*, p. 213.

and thence to Paris, after a fortnight's stay near Biarritz. From there we went, as usual, for the holidays to the neighbourhood of Paris, where fever is never heard of.

In the month of November, on the eve of our return to Paris, thence to start for the south, the fever attacked her. This fever became at once periodic; it was ternary—that is to say, it regularly returned after every two days. Relying on the beneficial influence of a change of scene, our departure was delayed for a week only, and we returned to Montpellier by easy stages, taking advantage of the good days.

The ordinary treatment was at once commenced; sulphate of quinine was administered in the doses and according to the usual method. Under the influence of the precious anti-periodic the fits speedily softened down, soon disappeared, to reappear, however, as soon as the exhibition of quinine ceased. And here began the difficulties which baffled us during five months. After a few good doses of sulphate of quinine the fatigued stomach required rest; the quantities of the remedy were decreased, and scarcely had we attained to a certain limit, when the fits returned afresh in attacks of weakness and pain, and soon reassumed all their intensity.

With every care and according to the methods of the best practitioners, we varied the form and preparation of the remedy, now giving it in wine or syrup, now with a little opium, with valerian, iron-water, &c. All this succeeded marvellously; but as soon as we attempted to suspend the treatment the complaint returned, and thus the whole winter passed away.

In the spring, however, the periodic principle seemed weakened, as if used up by time; it was then we thought of having recourse to change of scene, so efficacious in many nervous diseases. It is of this removal—the manner in which I accomplished and the results attending it—I now will give an account; other patients will, I trust, find in this account some useful hints.

Instead of getting into a railway train quickly to reach a distant point, I preferred returning to the old mode of travelling by short stages; I took a carriage, with three good horses,

and first directed my course to the Department of the Gard, to make my first stage at Uzès, this pretty town situated in so pleasant a locality, and favoured with so wholesome an atmosphere.

Thence I followed, by way of Alais, the road of the Cévennes and of the Lozère. We were at the end of March, the mountains still covered with snow, but I relied precisely on rapid transitions to combat the disease. We occasionally were badly accommodated in the poor villages of the high plateaux of the Lozère, but the weather was fine, and after a breakfast supplemented by the provisions we carried with us, the fresh and bracing air of the morning quickly dissipated the fatigue of the night. Some stages were painful, the bad day—that of the fever—still making itself felt by uneasiness and fits of faintness ; gradually, however, its influence decreased, and we arrived in pretty good condition in Auvergne, by way of Saint-Flour. Enjoying good air on this rock, on which the town is so picturesquely perched, we felt all the good effects of it ; the consequences of change of scene, and especially the mountain air, became manifest ; ease and strength returned visibly.

Thus we reached the chief town of Cantal. There was, in fact, enough to reanimate the most languishing health in this perfumed mountain air, coming in gusts of resinous odours from the pine-woods, over which shone a vernal sun, reflected by glittering snow. I have not even in Switzerland seen a finer pass than that of Murat to Lioran, the highest mountain of Cantal. On this road ascending through pine-woods the struggle of sun and snow, the contrast of the already great heat, with the mantle of winter rent by the dark verdure of the trees, produced marvellous effects ; and if the satisfaction of the soul at the sight of the beauties of nature can do good to the body, such a spectacle was well calculated to contribute to the restoration of health. The Lioran is perforated by two tunnels of two kilomètres, the one for the highroad, the other for the railway, and which debouch, the one above the other, into the beautiful vallèy of Vic.

After a three-weeks' stay at Aurillac, whose environs are so

rural and diversified, we returned to Montpellier so well rid of the fever that we could scarcely remember the good and the bad days. Having, however, after a certain time, noticed some agitation—a nervous excitement without cause—what in the southern patois is called *ratigas*—we ascertained by calculation that the recurrences of this disposition exactly coincided with the former days of fever ; so great is the tenacity of this morbid regularity when once it has seized upon the system !

In order to complete our work we made a fresh trip to the flank of Mount Ventoux, traversing the rich, fertile, and admirably bright plain which from Avignon extends on one side to Carpentras and Mount Ventoux, and on the other to the spring of Vaucluse. This journey, this new air, both in the pure atmosphere of the mountains, was the death-blow of the complaint—the use of beer also rendered us great services—every symptom of fever disappeared ; pains and swoons, agitations and nervous excitements no longer showed themselves ; the equilibrium was restored ; sleep and appetite promptly restored what six months' illness had taken away ; and, remarkable fact ! of this long morbid state not a trace remained, not a single organ was affected, not one function disturbed:

Now let us ask ourselves where this disease was contracted, where its germ was taken into the system, where the poisoning took place ; was it on the sea-shore or during our rapid passages across the swamp leading to it ? But it was only three months after that the symptoms appeared. I well know that this objection does not stop physicians convinced of the exclusive influence of swampy exhalations ; they reply that the germ of the disease, deposited in the blood, may want all that time for its development, and that persons have been known to leave Senegal without being apparently attacked by the prevailing fevers, and on the voyage home to be seized with intermittent and sometimes fatal fits, whose origin undoubtedly dated from their residence on the pestilential soil of our colony.

But this is what perplexes me : The fever of which I have given an account did not now for the first time attack our patient.

A few years ago it manifested itself in the midst of winter, far from any insalubrious influence ; this fever, combated by the ordinary specific, behaved like the latter, and was cured in the ordinary way, worn out by time rather than by remedies.

There is more to be said. The first invasion of this morbid state in the same person goes back a great many years, and took place under still more singular circumstances. We had not then left Paris, nor come near the marshy region ; we were going to spend the autumn in Picardy, a county where fevers are unknown. Well, on returning in winter from one of these sojourns to Paris, whose total reconstruction had not yet been undertaken, fever appeared—a slow, low fever, undecided and irregular, on which consequently quinine took but little hold. This fever rendered our friends anxious, and my colleagues, who were not very willing to admit of essential fevers—that is, fevers existing of themselves and without organic disturbance—said to me, ‘Take care ; examine well the chest ; there must be lesion somewhere which keeps up this febrile commotion.’ It was, in fact, very closely examined ; the cleverest physicians, the most skilful diagnostickers were called in—Rayer, Dr. Bell. The most careful examination revealed nothing ; all the organs were sound, and still the fever continued. Spring arrived ; the patient was reduced to a skeleton and without strength ; she was taken into her carriage, and, whip postilion ! we are off. Once fifty leagues from Paris the fever ceased of itself, and did not appear again for years.

And what is noteworthy, these fevers, which last for months, appear so tenacious, and resist the most energetic medical remedies, leave no trace behind ; health, on the contrary, seems only to become more blooming and firm.

Is this the result of a miasmatic intoxication, of a swampy poisoning ?

HYGIENE OF THE LUNGS.

CÔLDS—OR INFLUENZA.

I PROPOSE in this chapter to offer to the world some advice on a very common inconvenience, which is sometimes serious and may become a dangerous disorder ; I mean a cold, and would with respect to it treat after my fashion—that is to say, in popular language, apprehensible by everyone—of certain questions of hygiene and even medical doctrine.

We may, in fact, in speaking of colds, trench upon the very principles of medical science, its theories and schools ; for, according as we consider this indisposition as the result of either a general or a local condition, according to the importance attached to its causes, according to the way in which are explained its beginning, progress, and termination, you will incline more or less towards the ideas of the anatomic and physiological school, or towards those of the vitalists ; and theory is not alone interested in the opinion adopted, for the treatment will depend on the standpoint assumed. I intend rendering this proposition clear to everyone, even to persons who know nothing of medicine, and to interest them for a moment in a discussion whence they may derive some useful hints and notions.

Is cold a general affection, attacking the whole organism, beginning with the nervous system, and of which the irritation of the lungs and cough are only secondary symptoms, or is it an entirely local complaint, an inflammation of the membrane which lines the nose and bronchial tubes, under whose influence the whole body feels ill at ease, and even feverish ? In other words, does cold act like a thorn, which, having irritated the part it wounds, produces a reaction on the rest of the body, or

is it the very principle of life which at first is acted upon by the cold, and whose indisposition reacts on all the organs, and especially on those of the chest?

As you adopt either the one or the other mode of viewing it, you will either side with the partisans of the anatomical and physiological schools, who in diseases see nothing but local lesions, materially appreciable, or with the adepts of the vitalistic schools, to whom, as a rule, local lesion is of little importance, and who refer most organic and material disturbances to a primitive derangement of the force regulating the phenomena of life.

With the first you will attribute a cold to the direct impression of cold air upon the mucous membrane of the nose and lungs; you will especially endeavour to preserve these parts from contact with the exterior air, and will direct the curative means upon the inflammation of the bronchial tubes; you will have recourse to soothing and softening remedies, to fumigations, and in violent cases to leeches and bleeding.

With the vitalists, on the contrary, you will think more of the effect of cold upon the constitution and the nervous system; you will equally protect the patient from the attacks of the exterior air, but you will assert that you are acting more efficaciously on the disease by attacking it in its origin by means of medicaments or methods to which we attribute a manifest action upon the vital force.

The case will here be the same as in graver maladies, where the difference of the two methods is more pronounced, by reason of the more distinct characteristics of the evil, as in inflammation of the lungs, for instance. Whilst the physicians of the School of Paris will first of all try to ease the lung, which seems to them to be the essential seat of the evil, the physicians of the School of Montpellier, neglecting to a certain point this affection of the respiratory organs, which they consider as secondary and on the result of the disease existing in the vital principle, will leave the lung to itself or only feebly assist it; they assert that you must attack the evil in its source by the

help of substances and of a treatment proper to re-establish the equilibrium in the forces that regulate the machine.

It appears, then, that it matters as much as regards practice as it does with reference to science what camp you are in, and that cure of disease depends as well on principles as on theory.

People in general will be surprised that such dissension should exist among physicians on so serious a matter, and will ask how it is the question had not been answered by more than two thousand years' labours and researches, undertaken by the most eminent men, and even men of very great genius.

We will endeavour to make them understand how it is so, and hope that by means of a cold, which everyone knows, they will see how great the difficulty is, and that the best observers may lean to one or the other side.

Let everyone remember what happens when he catches cold ; let him reflect on the circumstances of that indisposition, on its commencement, progress, and termination, and he will not be long in perceiving that this case, apparently so simple, may be interpreted according to the two methods.

In fact, after any insensible catching cold a man feels uneasy ; fatigue, often so great as to make him stoop, a disposition to shiver, and a slight headache. Things remain in this state for two or three days, and no cough exists as yet ; but the nose is stopped up ; it begins to run, the necessity for a handkerchief becomes frequent, sneezing follows, the eyes water and cannot bear the light, and one becomes stupid.

Later on, as people say, the cold descends from the head, to the chest, and then you have a decided cold.

Well, during those two or three uneasy days in which there was no cough, when the cold properly so called did not yet exist, so that this indisposition might well have been the forerunner of some other disease, was it the membrane of the nose and bronchiæ that was attacked first, in which there arose an inflammatory action, which reacted on the whole system, or was it the regulating principle of our functions that was troubled, and did this disturbance react on the respiratory organs ? Is the cold not, as it were, the complaint, the groan of the sick

vital principle, the expression of its suffering, as tears are only the material expressions of mental suffering? Consider well all the data of the problem, and you will see that there are such as will suit either theory.

If the action of cold on the respiratory tube be the veritable cause of a cold or influenza, if the air act in this case like a thorn that wounds, why, on the one hand, does one not catch cold every time one is exposed to very cutting air; and, on the other, how does one sometimes catch cold so easily by exposure to air whose lowered temperature is scarcely perceptible, in consequence of cold confined to the feet, and finally even by your own fireside, as is but too well known?

There must, then, at least be a general predisposition of the system; the vital principle must be able to undergo or repel the deleterious action of cold. Further, consider how colds progress and how they end; many slight remedies soothe and assist the crises of coughing, but nothing arrests the course of this complaint; it has its growth, stationary period, and period of decrease, and whatever you may do you cannot shorten it by a day. A thorough cold—I only speak of simple colds, without complications and perverse predisposition—always lasts at least three weeks, rather more than less; the most energetic treatment has no power over it, and I have seen it resist repeated bleeding, syrup, lozenges, and various other remedies. Does not all this bear the impress of a general derangement?

On the other hand, it is evident that it is most frequently under the direct influence of cold that influenza originates and that the cold air acts especially on the respiratory organs; colds, no doubt, like all disorders, do not arise without a particular disposition of the organism, which is called *predisposition*; this is the reason one does not catch cold every time one is exposed to cold weather, even on going out from a hot atmosphere, even on experiencing a true shivering fit. I have often plunged into the water whilst my body was bathed in perspiration, and fallen into an icy stream of the Pyrénées, not only without catching inflammation of the lungs, but not even a cold, whilst I catch cold like everybody else by insensible cooling of

the air, or even at my fireside. It is none the less true that cold is the chief cause of influenza, that people seldom catch cold in summer, and that the respiratory organs seem to be seized first, and to be most sensible to rapid variations of temperature ; but they need not be directly attacked ; the cooling of one part of the body, of the feet especially, reacts promptly on the chest.

The most probable, then, is that a simple, ordinary cold is a local lesion, an irritation of the mucous membranes of the nose and bronchial tubes, and that the feeling of general uneasiness depends on the inflammatory action going on in those parts ; but this disorder, like most others, requires a predisposition thereto—that is to say, a peculiar condition, unknown in its nature, which prepares the economy to undergo the influence of the occasional cause. Such is the theory which seems to me the best established in the actual state of our knowledge.

If, in fact, I observe myself, what do I find ? Accustomed for the last ten years to the climate of the south, I am more sensible than formerly of cold, and especially of the damp cold of our Parisian atmosphere. Now on the 8th of September last, the temperature having suddenly fallen several degrees below zero, I left the country in a state of perfect health, but impressionable enough, and less disposed to reaction than usual, having shortened my sleep to rise early. After breakfast I leave the Café d'Orçay, and meet an icy wind blowing on that quay facing the north. Having but a little distance to go—I was going to the Institute—and expecting to find a good fire on my arrival, I did not care for the shiver that passed through me ; but in an instant I was penetrated to the marrow by the cold, and I seemed to be sweating needles. Nor did I easily and to my complete satisfaction get warm.

I nevertheless attended to my affairs, made a great many calls on foot, and in the evening went to the theatre. The following night I could not get warm. Thence an uneasy feeling, fatigue, and weariness ; the second day I could scarcely move about, and began to cough. I could not nurse myself ; and,

besides, what would have been the good of that? as I shall show by-and-bye.

I was obliged to start the same evening for Montpellier. The rest need not be related in detail; it is the history of a violent cold, but without complication, and which does not altogether hinder you from following your usual occupations.

At the end of three weeks I returned to Paris, worn out with the cold and cough, getting no sleep, and my nervous system painfully affected. At last I can take rest in the country and nurse myself. The moment was favourable, for the efficacy of the remedies is greatest when the cold is approaching its termination; such and such a syrup, lozenge, or soothing preparation, inactive in the acute stage, does wonders towards the decline, and so a few spoonfuls of syrup were sufficient to restore to me rest and sleep, to appease the cough; I slept the greater part of three days and three nights, and was cured.

In this watching of the case, as we would say in a serious disease, the action of the cold air on the respiratory organs seems evident, and all the symptoms that followed seem indeed to have been the result of the irritation and inflammatory action of the membranes of the nose and bronchiæ.

On another occasion, having contracted a similar cold by a sudden lowering of temperature after a storm, whilst I was sleeping in a railway carriage, however without fever or pain in the side, I suddenly got rid of it by taking violent exercise on the day of the opening of the hunting season, after having for three weeks suffered from a cough that left me no rest night or day. The same theory applies to this case.

Let us now consider the preservatives and the remedies.

Is there a means of preserving oneself from colds?

I shall not speak of what is familiar to everyone of the care one ought to take to protect oneself against cold, and above all against the sudden passing from hot into cold air, against damp cold; to clothe oneself well, especially in winter, to keep one's feet warm, &c.¹ A more important precaution, to be pointed out

¹ To keep your feet warm, get two copper and two zinc plates; let one of the copper plates be lapped or interlinked about one inch with one of

to persons that easily catch cold or whose chest is delicate, is to wear flannel next to the skin ; and, finally, to those fortunate enough to be able to fly from winter, to reside in a warm climate, such as that of Nice, and, better still, of Ajaccio and Cairo, remembering, however, that in southern countries they must avoid going out at sunset, as the air is suddenly cooled at that moment of the day.

But finally are there, in the ordinary conditions of life, and applicable to everybody, precautions really efficacious against catching cold, less common or trivial than that of not getting chilled ? We have seen that you may catch cold by your own fireside, as well as on exposure to the air ; this does not inspire us with great confidence in the preventive remedies recommended by everybody.

To become enlightened on this point I thought it advisable to apply to persons most interested in not catching cold—to singers at theatres, whose fortune depends on the soundness of their voice. Wishing to consult no one but a man at once intelligent and experienced, I could seek out no better authority than our great singer M. Dupré. He was kind enough to give me all the information his long practice has enabled him to collect on this point. Well, as regards precautions, the best is neither to multiply not exaggerate them too much. Doubtlessly you must protect yourself against cold by warm clothing, and guard as much as possible against sudden transitions from hot to cold and *reciprocally* ; but the safest is to fortify yourself against changes of temperature by exercise in the open air and in all weathers. And, in fact, in spite of precautions, it is impossible to avoid all occasions of getting chilled ; dramatic artists in particular are compelled to appear very slightly clad on the stage, where they are exposed to currents of cold air. This happens to us all from other causes in the ordinary habits of life.

the zinc plates, the lapping to be in the hollow, and the copper plate to go from the toe and the zinc plate from the heel, and meeting in the centre, or hollow, of the foot. Of course the plates will be thin and fitted to the inside of the boot. The galvanic current produced by the two metals, and the moisture of the feet, will keep the circulation constantly active.—*Transl.*

If, then, one is not a little hardened against cold, one becomes more susceptible and catches cold from the slightest cause; skull-caps and comforters perhaps produce more colds than they prevent by the hurried and unforeseen manner in which one is sometimes obliged to take them off; whilst cold ablutions on the head in the morning have cured many persons from their disposition to colds in the head.

One is surprised to see lady singers at the theatres, who frequently are very delicate, and exposed to sudden chills, against which there is scarcely any protection, catch cold so seldom. This arises first from their being sustained by moral conditions and excessive nervous excitement; there happens to them what occurs to fashionable ladies that attend balls—they are not cold, though half naked, whatever the rigour of the season may be; and, moreover, actresses and singers employ less precautions than is usually supposed, and are more than many other women hardened against the weather.

But if there be no reliable preventive against cold, is there not at least an efficacious way of treating it at its beginning, and means to baffle it?

I thought so for a long time, and flattered myself that by prescribing going to bed at the first attack the proportions of the evil would be greatly reduced. Nothing of the kind, or the effect is scarcely appreciable; the disorder follows its natural course, lasts none the less long, and its intensity is not diminished. M. Dupré confirmed me in this opinion. This eminent artist, to whom it is of so much importance not to be stopped by influenza in his winter career, assured me that bed did no good; that when he or his colleagues caught cold they underwent the same fate, and, after having tried everything, they merely kept their rooms for the first few days, tried to get warm and to perspire by taking hot and aromatic drinks.

Jujubes and syrups allay coughing for the moment; they soothe, and in this respect they are useful, but they do not cure, except towards the decline of the cold. It is then that one of these preparations, of which a small quantity of opium is always the active agent, often has a marvellous virtue; under

the influence of a slight narcotic the wearied nerves are soothed and the cough disappears. If in spite of all the cold continues, a few glasses of Eaux-Bonnes, mixed with milk, will easily overcome it.

As regards treatment, one perhaps does not often enough have recourse to punch and hot wine. Laënnec, the inventor of auscultation, the great physician to whom we owe the exact knowledge of chest diseases, did not treat colds otherwise in individuals of good constitution.

MEDICAL TREATMENT OF CONSUMPTION.

Remedies for consumption have of late been so much spoken of, that the moment seems opportune to us to explain the position of medical science with regard to it, and what is to be thought of the various treatments proposed for curing this cruel disease. If we destroy some illusions, we may render service by indicating resources, too often neglected by patients, which, if they do not cure, may at least prolong the lives of the sufferers.

Are there real remedies for consumption, and may you put confidence in the advertisements and promises made by persons often occupying very honourable positions in the profession? Before answering this question and telling consumptive persons what they may expect and hope for from medical science, it is necessary to premise in what the evil consists.

Consumption, strictly so called, is a disease of the respiratory organs, especially of the lungs, determined by the production of a peculiar matter in the heart of the spongy tissue of these organs. This matter at first is more or less disseminated in the form of small grains; these small grains, being multiplied, unite, become masses of greater or less size, which are developed by the addition of fresh matter of the same nature; comparable at the beginning to millet-seeds, they may acquire the size of nuts, of walnuts, and even go beyond that. At first hard and compact, they grow soft, give rise to a peculiar suppuration, which breaks forth in the air-channels of the lung, and is cast forth with the

saliva. In destroying themselves they leave a void in the pulmonary tissue, which, moreover, they ulcerate; hence cavities to which the name of 'caves' has been given. The morbid matter itself we have just described from its birth to its granulated state, and its greatest development is what is called 'tubercle,' or 'tuberous matter.'

This simple explanation shows that pulmonary consumption has several stages. It is at the first stage when the tubercles are as yet very small, disseminated, hard, or in a raw state, as it is called; the second stage begins with the union of the tubercles into more considerable masses, and with their softening; the third is characterised by their melting and the formation of caves, which is the real destruction of the lungs.

But there is yet another stage of consumption, more interesting to know, more important in some respects, which precedes the three we have just described, and which consists in the innate or acquired disposition to it. Physicians, indeed, recognise a predisposition to consumption, most frequently hereditary—a tuberculous temperament, or, more correctly speaking, diathesis. It is at this stage of the disease that the precautions fit to prevent it or arrest its development may most successfully be applied.

It will now be understood that the treatment of phthisis must vary according to the stage to which it is applied. There is a preventive treatment, suited to young subjects, which have as yet nothing to fear but a general disposition, more or less pronounced—a preservative medicine, which is to maintain the patient at the first stage of the attack, to prevent or arrest, if this be possible, the development and evolution of the evil; and a militant medicine, battling with the symptoms that are manifest, and parrying as well as it can the danger on the point where it shows itself.

Well, what are the true resources of medical science in its struggle with the different stages of this formidable disease? No one has better expounded and defined them than Professor Fonssagrives, of the Medical Faculty of Montpellier. I will copy the somewhat lengthy title of his book, because it comprises

the author's whole thought, and well shows the aim he has in view. This book is entitled 'Therapeutic of Pulmonary Consumption, based on its Indications; or, the Art of Prolonging the Lives of Consumptive Persons by the Combined Resources of Hygiene and Materia Medica.'¹

We see he thinks less of curing consumptive persons than of lengthening their lives; but, after all, is not the essential thing to live? and what matters it to have your enemy in the lungs, or the stomach, or the nerves, if you manage to overcome him? There are so many people who live, and not too badly, with a poor stomach, or irritable nerves, or even worse! Consumptive people would not be more pitiable than so many other suffering beings, if they were enabled to attain in some way or other the reasonable term of existence. In any case do not ask anything else from M. Fonssagrives; he is too honest and too experienced in his art to promise what he cannot keep. But within those limits—that is to say, in the manner of guiding a patient, directing him according to the stage of his disease, employing for his benefit all the resources of hygiene, all the virtues of medicaments—it is impossible to betray more care, skill, knowledge, and experience. All that science and experience can give may be asked of him; but, once more, do not exact from him a certain method of curing phthisis, as people generally do; he does not promise it to you; he is too conscientious and enlightened to do so. He will modestly and frankly reply to you, 'We do not cure consumption; we "dress" (*pansons*) it.'

Let us, then, with him consider some of the means for 'dressing' consumption; we shall, so to speak, only register the headings of his chapters, for we do not intend to draw up a medical treatise, but these titles will suffice to give us a glimpse of the resources at the disposal of a clever physician.

M. Fonssagrives carefully considers leanness, for the leanness of consumptive people, which at first is the effect of the disease, in its turn becomes the cause of the development of

¹ Paris, 1866. 8vo.

tubercles. You in this see the experienced physician and consummate hygienist.

The manner in which he watches the efflux of blood to the chest in persons suspected of a tuberculous disposition, the use he makes of moderate and suitable exercise, the advice he gives as to the choice of a career or profession, his analysis of the influences of different pursuits, his discreet counsels as to the suitability of marriage, &c., testify to acute and delicate observation, and his expressions are often very felicitous in rendering his thoughts. Thus, in recalling the temporary improvement produced in consumptive persons by pregnancy, 'it seems,' he says, 'that death, merciful like the law—the punishment of death is not applied to pregnant women—suspends the execution of its decrees until after the confinement.'

M. Fonssagrives does not limit himself to precautions and hygienic cares to improve the condition of phthisical persons; he treats them as true patients when the disease assumes an active character, and though moderation and prudence evidently belong to his nature and are the impress of his hygiene, he nevertheless does not recoil from energetic methods and medicaments when the diagnosis is plainly distinct.

There is a substance he is very fond of, and to which he attributes great power to arrest the tuberculous evolution and soothe the violence of the blood—viz. an emetic—in scientific terms, *tartrate of antimony*. Administered, not as an emetic, but according to the *Rasorian* method—so called from the name of the Italian physician Rasori, who invented this method—that is to say, so as to support, *tolerate* vomiting, and to penetrate the system without acting on the stomach—this medicament, according to M. Fonssagrives, is very efficacious in the first stage of phthisis and renders signal service. It stops the breaking out of the tubercles, and maintains the morbid principle in its state of inertia, which ought to be the aim of all the efforts of the physician.

Very interesting are the chapters which M. Fonssagrives has devoted to the use and effects of foxglove, arsenic, sulphur-water, cures by means of whey and grapes, &c.; but they

especially contain precious hints as to diet, the influence of climate, and the advantage of different localities, Continental or sea-coast medical stations, with regard to consumptive persons. M. Fonssagrives has travelled much; before being attached as Professor to the Medical Faculty of Montpellier he occupied a distinguished rank in the Navy.¹ He observed and practised in every latitude; no one was in a better position than he to appreciate the effects of temperature, still or agitated air, humidity, altitude, sea-coasts, different skies, &c., on impressionable nervous constitutions, or such as are predisposed to chest diseases; he is a sure, experienced guide, from whom you can receive none but good advice and wise directions.

We make reservations only with regard to the instructive observations scattered through his book on that most important point: the most beneficial place of residence in the different stages of phthisis; and this less in a criticising spirit than to show that in such a case it is not sufficient to consult the map and geographical situation only; there are local conditions that must be known to decide on such or such a spot. Thus, speaking of Corsica, the author says: 'Bastia and Ajaccio are the two chief winter stations of this island; but Ajaccio, though to the south of Bastia, in consequence of its position on the western side of the island, is exposed in winter to north-westerly winds, and offers fewer advantages than Bastia,' &c. The contrary is the case; the town of Ajaccio, in fact, ensconced in its deep bay, surrounded by a circle of mountains sheltering it from all sides, like a hot-house, is protected from every wind; whilst Bastia, on a naked coast, is exposed to the sharp east winds, and the *libeccio* (south-west wind) is as violent as the mistral at Tarascon. Ajaccio is Montpellier with more heat, but without wind and dust; with some spots on the Grecian islands it is one of the finest climates in the world.

M. Fonssagrives has fully treated of all that concerns the medical treatment of the three stages of phthisis, and has not neglected the precautions to be taken and the care to be

¹ See Fonssagrives, *Traité d'Hygiène navale*. Paris, 1856. 8vo.

bestowed at the time when the complaint is as yet only *in potentia*, as it is called, when it exists only in disposition, but has not yet betrayed any signs of activity. Its germ exists in the economy, but is asleep until some natural or accidental cause awakens it. This awakening is to be avoided, this sleep prolonged; for if you are fortunate enough to cause it to continue until a certain period of life, until the moment when all the phenomena of growth and development are accomplished, the body, so to speak, enters upon a period of rest, and need only live on; you are saved, or at least the chances of accidents and death diminish in a considerable degree. You may indeed still die of phthisis at the age of thirty-five or thirty-six, for men die at every age, but this kind of danger is not more imminent than any other; you may feel confidence, and with care prolong your existence as far as persons untainted with consumptive principles.

We regret that M. Fonssagrives did not fundamentally, and with the authority with which his vast knowledge on this matter invests him, treat of a question that interests us in a high degree, to which we attach much importance, and which, in fact, seems to us to be paramount to all others. We must admit the life of a valetudinarian, who is compelled constantly to nurse himself, to take all kinds of precautions, to fear the least breath of wind or slightest excitement, is a miserable one; that one would like to be able to do more than merely prolong the lives of consumptive patients, and asks oneself the question whether, by beginning early, not only before the evil has invaded the system, but at the very first indication of a hereditary vice, one could not succeed in modifying the constitution deeply enough to annihilate the morbid principle and regenerate the blood. It is evidently only by a total change of surroundings, circumstances, exterior influences, and diet one might arrive at such a result; at the least suspicion a threatened child ought to be carried to the region and under the sky the most fitted to combat the lymphatic disposition, to impart to its blood generous qualities, firmness to its tissues, to its organs that resistance which would render it capable to neutralise and for ever expel the kind of virus trans-

mitted to it. But it would not be enough to do this for a season, as is but too often done, nor even for two or three years; the child ought to be expatriated for ten years at least, and brought up in the midst of the most invigorating hygienic and climatic conditions. Such a resolution would exact, on the part of the physician, sufficient devotedness to warn families long before they apprehended danger, to awaken their fears when they feel as yet perfectly secure, to put the question of the life or death of a child apparently enjoying flourishing health pointedly before them; and, on the part of the parents, the means and especially the will to sacrifice everything to the salvation of the child.

Alas! such medical treatment is difficult in practise—we know it well—and only applicable in a few privileged cases. But who knows? If the influence of a transplantation into appropriate regions were well demonstrated, if its success were established by the example of rich patients who had derived benefit from it, who knows if Government and societies would not create colonies for those poor children of the people who now by thousands fall victims to consumption? We must despair of nothing as regards social improvement; the accomplished and realised progress of the day, which in hygienic respects removes us so far from the barbarism of the Middle Ages, legitimates all our hopes for the future.

But is the result of which we here offer a glimpse possible? Is there anywhere a propitious spot, are there conditions of temperature, atmosphere, and climate, capable of so far regenerating the constitution of children with consumptive diathesis, so that a large number, if not all, may escape the evil by a prolonged residence in the midst of these conditions?

This question cannot as yet be answered by numerous facts and well-established statistics; still, many emaciated children may be found who, on being carried from cold and damp countries, narrow valleys, and mountainous districts, into the beneficent sun of the south, on the hot and sandy beaches of the Mediterranean, are restored to health; whose big bellies, frail legs, and puffy faces in a few years make way for firm flesh, a

rosy complexion, and well-proportioned and vigorous limbs. Instances enough are known of young people threatened with phthisis who, while residing for years at Madeira or Malaga, were free from all serious symptoms, and who would have lived their full term if the love of their country had not too soon recalled them to a murderous atmosphere. Physicians, I say, have registered enough happy facts of this kind to conceive the hope of radical cures by a prolonged sacrifice, until the morbid principle be entirely exhausted under the influence of regenerative conditions.

HYGIENE OF THE TEETH.

THE teeth ought to be kept in a state of the utmost cleanliness; this is a popular precept which every careful man attends to.

But it may not be useless to observe that it is advisable to use hard brushes, and not to be afraid of making the gums bleed; which, on the contrary, strengthens and consolidates the teeth.

As to the dentifrices, you may use the water of Botot, or, still better, charcoal-powder mixed with quinine and flavoured with mint-water; this is cheaper and more efficacious.

I think I need not enter into the consideration of bad teeth, of the cares and operations they require; this belongs to the medical science of the mouth, and is the dentist's business.

I merely remind old men that the loss of teeth is not a matter of indifference as regards alimentation. When the teeth begin to fail, and one can no longer properly masticate the food, bad digestion ensues, which compromises health. I could cite a celebrated old man, as remarkable for the preservation of his body as for the vigour of his mind, who visibly declined when about eighty years old; his children grew anxious, but, enlightened by their love and the desire to preserve so precious and dear a life, they noticed that their father no longer properly masticated his food, since he had lost his last teeth, that his digestion was painful, and that thence no doubt arose his weakness and emaciation. In fact, a good set of teeth arrested the evil and restored the old man to blooming health.

HYGIENE OF THE STOMACH.

OF ALIMENTATION AND MEALS.

‘ You never know whether you have dined well until the next morning.’ This maxim of a man of wit, famous for his knowledge and experience in the art of dining well, is founded on true hygienic principles. To dine well does not merely mean to eat well, nor even to relish choice morsels; the stomach must be as satisfied as the palate, digestion must be easy and followed by a general well-being of the body, or else dining was merely the act of a glutton, and not of a rational man. A badly digested dinner cannot therefore be called a good dinner; the discomfort of a bad digestion is a thousand times worse than the enjoyment of eating the most delicate and exquisite dishes was great. Now it is only at the end of a certain time that digestion is accomplished, and that consequently one knows whether one has dined well. In this reflection there is the whole science of a physiologist, as well as the experience of a true judge and man of wit; and no one will be surprised at it when he hears that it proceeded from Dr. Véron.

But let us ‘squeeze’ this maxim a little, and see what it all contains. It is worth the trouble; the pleasure of the table is that which is most frequently renewed and lasts longest. Is there, in fact, another you can indulge in twice a day and for more than sixty years?

To remain in the conditions of an intelligent and rational being, while dining well, it is not enough that digestion be performed without too much trouble, and that no fatigue be felt next day from the operation; after the repast one must feel neither stuffy, nor swelled out, nor heavy.

To lay down rules in this respect let us trace ordinary life—

the diet of every day, of exceptional circumstances, of extra repasts—in fact, of grand dinners. I speak of dinners only, because luncheons (*déjeuners*) exist no longer, thank Heaven ! these are blunders that are going out of fashion, and which a man of sense no longer commits. What a foolish fashion to begin the day by gorging oneself with solid food and wine ! Who has not suffered from these ill-placed meals, to which you go dying of hunger, because they occur very late and must be waited for a long time, and after which one does not know what to do with the long hours that follow, and which cannot be given to pleasure or work ? Except on rare occasions, such as family parties, in the country, where you can amuse yourself in the open air, where you must separate early to allow everyone time to return home, the breakfasts or luncheons so dear to our fathers ought to be proscribed.

In the busy life we lead let lunch be a slight repast, incapable of overloading the stomach, making the head heavy, and inclining us to sleep. You ought to preserve your faculties intact and the body brisk, to attend to the occupations of the day, mental work or mere reflection, reading and the most ordinary family duties. As it is certain that people generally eat too much, it is best to confine oneself to one good meal a day, in order to give the stomach time to rest, and not to put one digestion on the top of another scarcely performed. Unless you lead a very active life in the country, in which you spend much vital strength and where a great deal has to be replaced, sobriety until dinner ought to be the rule of a good hygiene ; and, moreover, if you watch country-people, labourers, agriculturists in easy circumstances, who themselves share the farm work, and who could refuse themselves nothing they wanted, you will see that they eat less than we, not perhaps in quantity, but in substantial quality. They undoubtedly consume more bread and vegetables than dwellers in towns, but meat forms only a small proportion of their meals ; they are satisfied with a dish or two ; they have soup in abundance, a piece of boiled beef, potatoes or haricot beans, but none of those *hors-d'œuvre* which stimulate the appetite, over-excite it ; and their dessert is

confined to a piece of cheese. What sportsman has not noticed that the best time to pursue his favourite exercise is the morning, before he has made a regular meal, the stomach being only ballasted with a plate of good soup, or, better still, a cup of coffee? He thus easily goes on till midday, and well knows that if by that time he has not 'done his sporting,' the game he will kill after a copious repast will not be worth much.

There are people who think they must eat as soon as they open their eyes, and who are afraid of jeopardising their health if they did not quickly swallow some tea or chocolate while waiting for their actual breakfast. There may be such constitutions, but they are probably the result of habit rather than of a peculiar organisation. I can understand that when you live in the country, rise early in all weathers, cold and damp, you really do want something of the kind; but, in truth, in the close life of cities this precaution is useless, if not even injurious.

The luncheon, then, of persons living according to universal habit, enjoying average strength and health, and wishing to observe the rules of a wise hygiene, will be moderate, even slight, and, above all, not composed of various kinds of food. Two eggs, two mutton chops, or equivalents, one kind of fruit, a fruit-pie or a little cheese, according to taste, season, and appetite, this is something like what will suit a man of ordinary constitution, who has no great fatigues to undergo, and leads a business or fashionable life. Tea or coffee may complement this repast, but taking care to watch oneself in this respect, since these substances are not indifferently suited for all constitutions; and persistence in them, in spite of the disposition of the organism, bringing in its train inconveniences and even injuries. I will quote my own example. I can at will bring on a fit of gout by using rather strong coffee for a fortnight; this is a peculiar idiosyncrasy. As to wine, I must confess I have a certain prejudice against the habitual use of this beverage in the morning, when I think water is more beneficial to many constitutions; but if you will not be satisfied with pure water, you must mix your wine, drink reddened water, and reserve wine for dinner.

Once more, I allow exceptions for people who take exercise, ride, or take long walks in the woods between meals; the difference of diet according to the mode of life cannot be too much insisted on, nor can it be pointed out too much that to persons in the country, trudging over fields with a gun across their shoulder, and performing forced marches, so to speak, an abundance of food may be allowed, which would be injurious to a closer or more sedentary existence. Substances which would be heavy on the stomach and congest the organs, when the vital strength is not expended, and too many nutritive principles are accumulated in the blood, are easily digested in the open air; in the former case one arrives at a state of plethora, which is as injurious to the moral faculties as it is to those of the body.

The choice of wine is no matter of indifference; with some red wine agrees, with others white, if their nerves are not too excitable. In all cases light wines, such as Bordeaux and Chablis, are preferable in the morning to the more alcoholic Burgundies, and especially to the wines of the south, which are charged with spirits of wine. Heaviness of the head, noises in the ears, often have no other origin than the use of too generous wines. And as regards ringing in the ears, of which so many persons complain, water and exercise in the open air are the best remedies against this inconvenience.¹

¹ Let me incidentally warn persons whose hearing is growing weak and hard, to abstain from introducing any instrument into the ear, whether to soothe an itching or to open the canal which seems obstructed. Nothing is more injurious than this proceeding, confirmed deafness very frequently resulting from it. All natural openings ought to be respected, and sounding instruments must only be employed in cases of absolute necessity. The tip of the finger, covered with a piece of moistened linen, is the only cleansing medium to be used for the ear. If there be complete obstruction in consequence of the accumulation of hardened matter, injections of soap and water, by means of a small syringe, will answer the purpose; and even this remedy must not be abused, lest the internal membrane become too sensitive when it is too well cleansed and laid bare. Now, the least irritation of this membrane is sufficient to produce deafness. It is also advisable not to remain lying too long at night on the ear affected with noises; the blood, obeying physical laws, goes to the lowest parts, stops there, and

I return to alimentation and meals. After what I have said concerning the inconveniences of too abundant a diet, and especially on the necessity of giving the stomach time for rest for considerable lengths of time, it will be clear that I condemn the dainty refectious, or 'snacks,' taken at pastrycooks shortly before dinner. The question is not to proscribe them entirely, and with exaggerated rigour to deny oneself this small enjoyment ; but it must not be abused, nor made a habit of. Nothing is worse at any age than to put one digestion on the top of another ; come, then, to dinner with a well-prepared stomach—that is to say, empty.

Dinner is a serious thing, requiring to be treated at large, not from the standpoint of gormandising and gastronomic satisfaction, but as an act as important from the standpoint of morality and family as of hygiene ; by the manner in which dinner is passed you may judge of the mutual relations of the different members of the family.

If there be unity, if after the occupations of the day the husband, the father, feels happy at being again with his wife and children, pleasant discourse and merriment will form the best seasoning of the food that is 'to comfort the body.' They will be in no hurry ; they will not eat merely to feed and relish the dishes ; conversation will mingle with the gastronomic occupation, and the exercise of talking, the exchange of sentiments, will render digestion easy and agreeable. Dinner will be the best moment of repose after the fatigues and preoccupations of the day ; the remembrance of the family table, lit up by the soft light of the lamp, cheered by a bottle of old wine which his father brought from the cellar to drink the health of his absent son, brought tears into the eyes of Jacquemont in the solitudes of the Himalayas. Business being over, you may prolong the moments of distraction ; you will not choke yourself by eating fast, and will quit the table well disposed to spend

tends to congest the tissues. There happens to the ear what we see happen to the leg, when performing long journeys in a carriage : it becomes enlarged and swelled. You will therefore endeavour to accustom yourself to sleep alternately on the one and the other side, which is easy enough.

the evening together, to listen to the recital of incidents and news, to discussion, reading aloud, or some game.

What a difference as to hygiene and health between such a meal and a dinner at which everyone, for want of unity, isolates himself, and hastens to swallow his food and leave the table !

It suffices to have been condemned for some time to dine alone, without any other distraction than one's thoughts, or a dumb book, to read which in such a case is an exertion, to know how beneficial a dinner is taken in company, and how indigestible a dull and solitary dinner is, where the pieces are piled upon one another, and which is expedited in a quarter of an hour.

I have mentioned elsewhere¹ what benefit to health may be derived from travelling, when performed under favourable conditions, with spirit and good humour, and how it becomes a source of nervous suffering when, as often happens, it becomes an occasion for worry, wrangling, and petty annoyances. Is not the exaggerated anxiety about your luggage enough to neutralise all the good effects of a pleasure trip ?

Well, many disorders of the stomach have no other origin than meals taken in a state of moral discomfort, or nervous excitement. Give me a united family, gaily assembled round the dinner-table. I do not say that it will be safe against the infirmities of human nature, but assuredly bad digestion and disorders of the stomach will be more rare in it than elsewhere.

Let us come to the dishes themselves, their quantity and quality. I suppose that, in conformity with the foregoing advice, dinner is the chief repast of the day, that it takes place when all business is over, and that it was preceded by a slight lunch only, after the measure indicated above : this is the moment for a healthy man to yield to his appetite, always with a certain reserve, undoubtedly, but without fear of attacking a good joint a second time, and drinking a few glasses of good wine.

I have no occasion to enlarge on the composition of a good ordinary ; I leave it to the custom of the country. At Paris,

¹ See *ante*, *Exercise and Travelling for Health*, p. 19.

and we may say throughout France, soup, an *entrée*, roast, vegetables, an *entremets*, or side-dish, and some plates of dessert, constitute the ordinary of a family in easy circumstances.

The stomach likes variety ; it has its passing fancies, its caprices, and what suits it at certain times will not always agree with it at others. Delicate, sensitive persons will therefore do well not to persist systematically in a special diet ; they ought to partake serially of butcher's meat, poultry and game, fish, vegetables, and fruit, both raw and cooked, and even of sweets. Certain individuals are essentially carnivorous—that is to say, the flesh of animals agrees particularly well with their organisation. Such persons digest solid food better than light and but slightly nutritive substances, which fill the stomach without contributing much to nutrition ; they abstain from dainties, creams ; their meals end with the dishes *de résistance*, roast meat, vegetables, and a piece of cheese ; they rarely touch dessert. This is not a bad state to be in, and such persons leave the table well fed and without being gorged.

The seasoning of food is an essential point. The medical system of irritation has had great influence on the alimentary regimen, and the preparation of dishes has been greatly modified thereby. For fear of irritating the organs all highly seasoned dishes and spiced *ragoûts* have been rejected ; pepper especially is proscribed, and is now not found at all on many tables. This is exaggeration. Certainly the abuse of potted meat and highly spiced sauces has its evils, but it is wrong to think that insipid cookery can be good for the stomach. The digestive organs need stimulants ; they like them, and are benefited by them, when given in proper quantities. There is, moreover, an erroneous opinion abroad concerning the action of stimulants on the membranes of the stomach. It is, for instance, supposed that a grain of pepper put in contact with that membrane irritates it to inflammation. This is a mistake ; the case stands not thus. Under the influence of an excitant the stomach secretes a mucous matter, a peculiar juice, which envelopes the substance, penetrates, and renders it innocuous ; and of its contact there remains nothing but a fresh degree of

energy, favourable to digestion. What I have stated here applies especially to solid substances—the ordinary condiments usually employed in dishes, pepper and salt, stimulating and aromatic spice.

Let the dishes, then, be suitably seasoned, highly even, according to their nature ; be not afraid of peppering a mutton cutlet, or slice of beef, or a salad ; you will be all the better for it, especially if you take care to use freshly ground pepper, and, therefore, more aromatic and less pungent than the horrible flavourless dust served on most tables ; it is so true that no irritation of the stomach will ensue, that you feel no excitement or thirst after a repast in which you have made proper use of pepper, and digestion will be facilitated ; but salt, which is less dreaded, and which in fact forms an essential part of good alimentation, has not the same advantages—food too highly salted provokes thirst during the whole evening.

It is not the same with liquid substances—with liquids strictly so called and alcoholic beverages—from the point of view of their action and effects on the organism ; these are rapidly absorbed, mix with the blood, and penetrate into all the organs. This is the reason why excess in drinking is so dangerous ; it is a true poisoning, and one single abuse of alcoholic liquor may prove fatal.

After habitual diet come extraordinary circumstances, grand dinners, repasts in state, which require quite a peculiar art in hygienic conduct. They demand all the more prudence, and even skill, since good cooking, plain and wholesome cooking, is put aside in them, and the detestable fashion of *restaurateur* dinners spreads more and more. Grand dinners are no longer prepared at home by the hands of a good cook ; they are ordered of the *restaurateur*, at so much a head, so that adulterated sauces are substituted for the genuine gravy, and the savoury dainties of poultry of former days are replaced by horrible mixtures of disguised meats. Grand dinners are no longer family fêtes to which you invited a certain number of friends you were happy to entertain well ; they are tasks you get rid of as quickly as possible by paying a round sum, without

having the trouble to arrange and superintend their execution. The least inconvenience of these dinners is that they rather discourage than stimulate the appetite and satisfy the taste; you are satiated beforehand by monotony, for you are almost sure of encountering everywhere the same *menu*, and the same chemical composition to serve as sauce for every stew. If you dine out six times during the season, you six times eat the same dinner.

But hygiene suffers even more by these repasts than gastronomy. Who does not know from experience how greatly what is called a *restaurateur* dinner is calculated to fill the stomach without satisfying it, and to prepare a painful digestion?

You escape this disagreeable result only by an industry practised by men of experience.

Do not allow yourselves to be tempted by any of those accessories which, under the names of tit-bits, are offered to you before the large joints, under the false pretext of giving you an appetite.

Let these badly conceived culinary efforts pass by and wait for the fish.

After this first instalment confine yourself strictly to two or three dishes, an *entrée*, a wing of fowl, vegetables, and if you are wise and really wish to follow hygienic laws and well-being, rely on your appetite all the more, seeing you take part in a grand dinner.

Mistrust sweet *entremets*, pastry, and especially light creams, which are the most indigestible things after a copious repast. If you terminate your dinner suddenly after roast meat and vegetables, without being tempted to nibble dainties, and of the dessert accept only a little cheese, I promise you an easy digestion, a body and mind in good order for the whole evening.

As for wines, everyone knows that they ought to be drunk in moderation, avoiding too great a variety. Let everyone follow his particular temperament and taste as to kinds and qualities. I shall only observe that certain cold wines, like hock, calculated to interfere with digestion, ought rather to

be served in the middle than at the end of dinner ; the same applies to champagne, and I strongly approve of its being served with roast joints rather than with dessert.

One word only as regards ices. Ices are not hurtful in themselves, but may become so when eaten at the wrong time. They must be taken either while at dinner, like sorbets served between the two courses, or before finishing the repast, or you must wait till digestion is nearly over. Taken at a certain moment of this process, in the middle of this act which concentrates the vital activity on the stomach, they may stop it suddenly, seriously disturb it, produce real indigestion, and finally give rise to complaints which in hot weather might become very serious. Drink cold liquids, but mistrust ice ; in hot weather it produces unquenchable thirst, and absorbs a quantity of indigestible liquid.

To show how greatly the operation of digestion ought to be respected, and how many dispositions, peculiar in this respect, there are, I will quote the following fact : It is known that for smokers the most favourable moment for satisfying this taste is after a meal ; they hardly quit the table when the want of a cigar is felt. Well, there are persons in perfect health, with an excellent stomach, and accustomed to tobacco, who cannot smoke before their digestion is accomplished, under pain of disturbing it and making themselves uncomfortable. For these smokers the time *par excellence* is midnight, after a good dinner and an agreeable evening ; you must therefore watch yourself.¹

¹ As regards tobacco, we must say concerning it what we say about wine and strong drinks. It is clear that it may be abused, and that there is drunkenness of tobacco, as there is drunkenness of wine, and that the one may be as fatal as the other. But what can we tell drunkards they do not know as well as we? The wretches who get intoxicated are well aware that they destroy their faculties and kill themselves ; but their passions listen to nothing, and it is precisely the state of brutalisation into which they put themselves that constitutes their enjoyment. It is the history of opium smokers. It is true, tobacco has not the energy of opium ; but who has not known men of parts, superior minds, who morally and physically annihilated themselves with tobacco? I could cite many sad and remarkable instances. But excessive abuse proves nothing against rational use, either as regards wine or tobacco.

It follows as a matter of course that a cup of *good* coffee, very *hot*, is the indispensable complement of a good repast ; but, alas ! how rarely are these two conditions attended to, even in first-rate houses !

It happens often enough that after a good dinner you are startled by a beating of the heart, accompanied by an uneasy feeling. This is the moment when the new chyle, the produce of generous food, is poured into the circulation, and with the blood penetrates to the heart. There is no cause for uneasiness ; it is the natural consequence of a good digestion, and the discomfort exists only for a moment.

All the members of a numerous family known to me finished their digestion only towards morning. If you awaken such people, and they are obliged to rise early, their digestion is infallibly interfered with.

OF GOUT—HYGIENE OF GOUTY PERSONS.

On a visit paid more than thirty years ago to the Hôtel-Dieu, the celebrated English surgeon Sir Astley Cooper asked Dupuytren, ‘Are there many gouty people in Paris?’ Dupuytren replied, ‘We have gourmands.’

It is, in fact, a widely spread opinion, even among physicians, that gout is the fruit of good living, and facts in support of this doctrine are not wanting, were it but this, that gout is scarcely met with among the sober inhabitants of the country, whilst it freely haunts the inhabitants of towns, who are rich and live well. Wherefore also it cannot be eradicated from the minds of some people that sufferers from gout are not to be pitied, and have nothing but what they deserve, *fructus belli*.

We must, however, distinguish between hereditary, *constitutional*, and *accidental* gout. The first, alas ! attacks men who are least lovers of a good table and lead the most regular lives ; the most severe diet can do nothing against it. No, I am mistaken ; it can do something by diminishing the intensity and frequency of the fits, but it does not destroy the disease, and people remain gouty all the same. The second, on the contrary,

is often the product of excesses at table, or rather of badly understood alimentation, and the use of substances antagonistic to certain constitutions. It is of these alone I want to speak, the other being a veritable disease, requiring the assistance of medical science even more than of hygiene; and, moreover, what I shall say concerning hygienic precautions will apply to one as well as the other.

I am not writing a treatise on gout; I only give a few counsels, the result of observation and experience, and address them to persons predisposed to this disorder. And first I will state what happened to myself. If all observing physicians collected their observations and related what they had studied in themselves in cases of illness, indisposition, or infirmity, such a collection would probably not form the least precious record of medical science.

I was fifty when this happened to me! It was indeed at that age that I for the first time had a fit of gout; it was violent and positive. I was surprised at this derangement of my health, hitherto so good. Why the gout at fifty years of age, and why become gouty at the age when this disorder rather decreases than increases? Was there some notable change in my mode of life and diet? I had indeed some innate disposition to this complaint; strange to say, I had had an attack at ten years of age, which had endangered my life. Since then I produced with great facility, and on the slightest departure from my usual regimen, uric acid, the usual accompaniment of gouty temperaments, but I had felt no new attack, and my health was excellent. What, then, was changed in me or my habits? I had left Paris, and was living at Strasbourg, but nowhere could my food be more wholesome. I lived there as a bachelor, my family having not yet rejoined me. To simplify my repasts, especially in the morning, when I had to work, I had taken to coffee; two eggs, or two mutton cutlets, and a cup of coffee without milk composed my breakfast.

Gradually I took the coffee stronger, and, as nearly always happens when you make it at home and are careful, I had succeeded in producing very aromatic and energetic coffee. I

may at once premise that, when I speak of the effects of coffee, I only speak of coffee such as this, the black and savourless infusion that is sold in various *cafés* having no effect on me, who am very sensitive to the action of Mocha. To return to my misfortune, I saw only this change in my diet that could explain it; but how could I attribute a fit of the gout to a substance which, according to popular opinion, seems so innocent of it, and which some gouty subjects even look upon as beneficial? I tried nevertheless. Having for six weeks abstained from coffee, I no longer felt the gout; but perhaps this was only a coincidence.

I therefore took to coffee again to make the counter-test, and soon rheumatic pains, so closely related to gout, made themselves felt in the shoulders, and settled in one arm. Vapour-baths with friction were tried in vain. The big toe became painful again, and I was again in for a severe fit of gout. Coffee was therefore proscribed, and as long as I abstained from that beverage there was no appearance of gout.

For more than a year I submitted to these alternates of diet, always with the same result, and even now the somewhat prolonged use of coffee without milk is sufficient to bring on rheumatic pains, or to give me a decided fit of the gout. It will easily be understood that, warned as I am, I do not easily expose myself to the visits of this troublesome guest. I only indulge my taste for coffee when I am travelling, or in the country, and can lead a very active life, in which the excess of nervous fluid developed by food, or the use of certain substances, is quickly expended.

I am all the more readily careful as to coffee, because this liquor to me is the most *intellectual* beverage, if I may so express it—the one that puts the mind in the most favourable conditions for work and production. Assuredly I am no materialist, but I must admit the influence of the physical over the moral, and I confess that with a cup of good coffee I am all I can be intellectually. This means must not be abused, for the effect would thereby be weakened, and when you have taken

coffee for a certain time it becomes a habit, and its 'charm' is destroyed.

The conclusion to be drawn from what I have just stated is, that it is well to watch oneself when a disposition to gout is apparent. Firstly, it is clear that a certain sobriety is requisite, but it is also advisable to notice the effect of certain solid and fluid kinds of food, so as to abstain from them, or at least not to indulge in them too often.

The observation of the urine also is useful in such a case. When it assumes too dark a colour, or deposits a brick-coloured sediment¹—uric acid—it gives a warning that ought to be attended to. Water, water in abundance, is the best dissolving agent, the most favourable for sanguine temperaments, persons suffering from gravel or inclined to the formation of stone.

And now what is the most efficacious treatment to combat the fit of gout when it comes?

This point requires explanation. We must understand each other, and know whether we talk of *constitutional* or of *accidental* gout.

As to the first, I willingly admit that the remedies are dangerous, because they are energetic; the necessity of having recourse to them frequently may fatigue the organs, and produce a greater evil than the disease itself against which they are employed.

Thus, for instance, violent purgatives are not repeatedly employed with impunity, though they are one of the best means to give relief in very painful attacks of gout. The famous medicine Leroy, in the days when it was in vogue, killed more gouty people than the gout itself. My friend Jules Janin, who is a judge, was therefore right when he one day wrote to me, 'Alas! what good fortune is this bit of gout in the little finger of my old companion! It brings me a pleasant letter, a dear remembrance. Gout has long been my friend; it is wisdom, repose, inspiration! Happy is he that deserves it and knows how to use it! This little Horace which the gout puts before you

¹ Coffee is no less active as a digestive than as a stimulant of the brain.

was dictated by gout ; hence be calm and patient, despise all curers ; mistrust the Lartigues ; they cure, but kill us.' I was just about taking the pills of Lartigue, but, relying on the fresh experience of my old gouty friend, I left them alone and resigned myself to patience ; nevertheless, I have since then returned to them, and without inconvenience, even with benefit, for there is some good in this remedy, when wisely and moderately employed ; and this is what I will here explain.

The pills of Lartigue are an energetic purgative, but not acting after the manner of saline purgatives, which produce abundant evacuations. Their action is chiefly confined to the secreting organ of the bile and on the liver, producing an overflow of bile, and half a dozen of these pills, taken by twos, will in a few hours cause the bile to get rid of its excess of fluidity, and thus procure relief. They carry off an attack of gout much better than any emission of blood or other remedy ; but it is evident that this remedy is only efficacious and without danger when the patient has a good stomach and sound digestive organs ; nor must the remedy be employed too often.

Are there waters specially favourable to gout ? Great is the fame of the rare and marvellous waters of Vichy,¹ which from the most distant parts attract thousands of beings suffering from gout, stone and rheumatism ! But the administration of Vichy water is a truly medical treatment, not to be employed at haphazard in every case, and without making allowance for the circumstances of the disease and the patient's constitution ; this, therefore, is a physician's affair.

As a hygienist, I confine myself to recommending especially exercise, violent exercise in the country ; and as for me, my best season for taking the waters is the hunting season.

To resume, if *constitutional* gout with some be the result of good cheer and excesses at table—of gormandising, in fact—the fault in other cases must be charged to the grandfather or great-grandfather, who transmitted the principle with his blood, for many sober people suffer cruelly from this disorder ; and

¹ See *ante*, Vichy, p. 190.

what would they not do to get rid of their sufferings? Diet or a severe regimen would for them be one of the gentlest remedies. But it is probable that this complaint has deeper roots in the organism, and that complex and hidden conditions are at its root. Hence the difficulty of reaching it.

As to milder gout, which is not inherent in the constitution itself, which I call accidental, it may be attacked even in its crises, because they are rare and the patient does not incur the risk of fatiguing digestive organs otherwise healthy and capable of bearing a shock.

But we must above all watch the circumstances that give rise to it and provide against them by a diet excluding certain aliments, or certain liquors, by a more regular and positive expenditure of muscular force and nervous fluid, by all that can renew the blood in carrying the heat outwards and reviving the functions of the skin.

In all cases abstinence from too substantial and highly spiced dishes, excitants, and generous wines is the proper regimen for all gouty persons.

OF 'EMBONPOINT' AND LEANNESS.

This chapter will not be long. I shall say a few words only on the excess of *embonpoint*, which seems to me such an infirmity that I do not understand how every care is not taken to prevent it. But are there hygienic means to prevent the accumulation of fat, or to bring down one's fat without injuring health? What a fortune for him who should discover how to prevent obesity and make thin persons stout!

In the absence of a sure method, some precautions may still be taken at the age when one begins to fill out and grow fat; it is advisable to watch one's constitution, especially if there be a particular disposition to become big and fat; and this disposition sometimes reveals itself very early. There are unfortunate wretches who attain a disproportionate size before they are thirty years of age.

I am much disposed to think that there is no remedy, when

the disposition is so pronounced and everything turns to fat; when, without eating much, the adipose tissue is seen to accumulate around all the organs. Nevertheless most obese men are great eaters, and no one doubts but that they might put a check on this tendency by being a little moderate in their food.

The prodigies wrought by training are well known, and how by diet boxers and jockeys are reduced to perfectly dry muscular fibre. Without carrying things so far, men, by joining exercise with sobriety, may resist precocious obesity; but it must be real exercise, to fatigue, and especially in the morning, escaping early from sleep and bed. Nothing contributes more to growing fat than lying in bed late, and we are not afraid to predict a speedy restoration of the equilibrium of assimilation and bodily proportion to persons who will rise early, work in their garden, or walk a mile or two before breakfast. We will lay a wager that a rural postman will never grow fat.

Some persons hope to bring down their fat by taking coffee. This is an illusion; coffee, on the contrary, when it does no harm, is calculated to produce fat, not by the nutritive qualities it contains, but by its digestive virtue. It so much favours digestion, renders it so complete, that no nutritive portion of the food escapes assimilation; all that can feed is absorbed under the influence of this stimulant, the body derives as much benefit as possible from the meals it takes, nothing is lost but what is absolutely inert, digestion is hastened and the stomach promptly disposed to act again.

Such is the action of stimulating beverages known as coffee and tea, and the reason why they favour growing fat instead of producing leanness.

And leanness, how is it to be overcome? Our inability to answer this question will be understood on considering that leanness either is the result of some organic disease, and then the cause, and not the effect, must be attacked (and this does not concern us); or it constitutes the temperament itself, and depends on the peculiar nature of the organs and their functions, and it would be necessary to modify the whole economy in order to remove the tendency to leanness.

A favourable result, however, may be aimed at by a well-directed regimen, by changes of scene effected under easy circumstances, without fatigue and excitement, by quieting and soothing the nerves, perchance by the use of some mineral water. Ah, if a spring possessing fattening virtues could be discovered, it would soon have a worship and adorers, as had the nymphs of ancient days !

HYGIENE OF THE EYES.

ORGANS are invigorated by exercise ; this is true of all the parts of the body, and nothing could be more fatal than absolute repose, even for the most delicate organs ; it would be atrophy, death, for all condemned to inaction. Many facts might be quoted in support of this physiological law, and show senses and glands annihilated from want of action. But the exercise must not go beyond certain limits, must not reach excessive fatigue, under pain of injuries, sometimes rather severe.

The case is the same with the eyes as with all other organs : they are neither more delicate nor less resisting, and take more kindly to regular exercise than complete inaction. I speak of good eyes, of course, and not of such as are naturally weak or affected by some morbid disposition. There is no difference in this respect between long and short sight. The latter, in the opinion of the world, enjoys a usurped reputation ; it is not true that it is stronger and more indefatigable than the former, which is not more sensitive or weaker than short sight.

What an admirable instrument is this organ, which adapts itself without effort and instantaneously to the perception of objects situated at a great distance and of those most near ! How can the same optical apparatus, without an appreciable change, see distinctly afar off at several leagues' distance and the point of a needle placed right before it ? This beautiful work is truly the production of a marvellous Artist !

The eye, then, may be much exercised, even at minute work requiring a strong light, without experiencing hurtful fatigue. For my part, I have excessively indulged in microscopic observations during long nights, and with the very strong illuminating power of Carcel, to study the transformations of infusoria, or to

discover the vibrating cilia by means of which they move about ; and when in the morning I said to myself that my eyes must be fatigued, and made use of blue spectacles to rest them, I soon discovered that the precaution was needless and that my eyes had not suffered at all.

In truth, I see sparkles, black points, and filaments, especially when I am before a white surface, or look at a cloud well lighted up by the sun. I described these clouds more than thirty years ago¹—that is to say, I was young then, and pointed them out as indicating neither a weakening of sight nor a menace of cataract, in spite of the opinion of our celebrated teacher M. Roux, who was very uneasy about them—and the proof that this is almost a normal state of the eye is that many persons, when once told of it, see these images, but their sight is not interfered with thereby no more than mine, which nevertheless is getting very old.

These slight bodies, floating in different forms in the eye, and following all its movements, must not be confounded with more compact images, appearing suddenly, after greatly fatiguing the eyes, in the shape of a branch of a tree or other form, and interposing themselves all at once between the eye and the object looked at, and transforming themselves in the evening into luminous sparks. This is the result of what oculists call a tumour on the cornea (*staphyloma*), a thing which is not serious in itself, and would dissipate itself without remedy, but which nevertheless it is well to attend to, first by rest, and then by the use of some dissipating medicament ; but here we trench on the ground of medical science, and hasten to leave it.

¹ See Donn , *Cours de Microscopie*, p. 485. Paris, 1844.

HYGIENE OF NERVOUS WOMEN.

OF DISEASES OF THE NERVES AND VAPOURS.

WHAT am I to say concerning disorders in which I do not believe, or rather concerning those painful conditions which are the result of unsatisfied physical and moral wants, and for which science and hygiene can do nothing? They are, in fact, neither diseases proper nor sufferings produced by a faulty regimen. The beings that experience them are all the more to be pitied since their complaints have no distinct seat, no special remedy, but resume themselves into a condition in which the moral part of the organism is even more affected than the physical, and that it would be necessary to alter all the conditions of their existence to balance them again. Now we have not the means of imparting happiness to those who lack it, nor to procure legitimate satisfaction to those who are deprived of it, either by social position or ill-assorted unions. All we can do is distinctly to point out the most general source of those sufferings which are not imaginary, whose cause is in vain sought for, and which are combated with inadequate means. This will at least put a stop to idly fatiguing body and mind with attempts and treatments that have no virtue in them. We may perhaps also point out some proceedings giving actual relief by enlightening the mind; or at least inspire caution, by warning against dangers easily incurred or not suspected.

If all this should appear obscure, I will clear it up by a simple proposition. Give me a woman—for here women are chiefly in question—married, having children and a husband who surrounds her with affectionate attentions, and I affirm she will have neither vapours nor nervous affections. But this condition, apparently so simple, is not as common as might be sup-

posed. How many women suffer without being able to account to themselves for the causes of their complaints and without the world's suspecting the secret they ignore ! It needs a discreet hand to raise the veil which covers so many apparently happy existences, and an observing eye to penetrate the mysteries of human life, to see the secret wounds of many hearts and to sound their depths.

Now it is the want of children that rends certain hearts, especially when they do not meet with sufficient compensation in a husband's tenderness. Now it is women who devote themselves with passionate love to their children. The world admires this exalted sentiment, which it calls sublime devotion, without perceiving that this excess of sensibility exists only for want of another love, that it is a resource to fill up the void left in the heart by the husband's coldness and indifference. As for me, I suspect those exaltations all one-sided, and maintain that a woman truly beloved by her husband is more calm as regards her children.

Here are many causes of nervous affection, and I might enlarge on this subject ; but, as I am not writing a treatise on moral philosophy, I can here only indicate the chief points to which are due the sufferings we would relieve.

What would it be were we to speak of the poor women devoted to celibacy, whose blood is inflamed and whose hearts feel burning desires to love ? I have always felt the greatest pity for respectable women who cannot marry. I have known some that passed the night stretched on the cold floor of their room, and the day in indefinable nervous discomfort ; there is no hell more frightful than that of these poor girls.

But it is not necessary to go so far to encounter many sufferings of the soul reacting on the nervous system.

Woman eminently needs affection ; it is her life and food, as indispensable to her as the food of the body ; of her especially it may be said *that she lives not by bread alone*. Well, how very few receive this food in proportion to their wants ! For man, on the contrary, is mostly an egotist, and his egotism, joined with a certain coarseness, betrays itself in a thousand ways.

How many of them, whose amiability and goodness are praised in the world, at home, and especially towards their wives, are cold and harsh, and sacrifice altogether to their tastes and habits the tastes and wants of those around them ! Husbands, if you wish to cure the nerves of your wives, first love them, give them contentment, enjoyments, even pleasure ; but it is not sufficient to take them to balls and theatres, to cover them with costly garments—all this must be done with a good grace—nor repress by bad humour the expansion fit to invigorate their nervous system.

Why, in speaking of balls, should I not add that this is the real exercise of women, that dancing to them is what hunting is to men ?

But can there be no disordered nerves with all the conditions of contentment and happiness ? Are there none easily impressed by exterior influences except those shaken by internal sadness ? Certainly such is not the case, and what proves it is that the happiest woman is not safe against atmospheric changes, damp and dry, piercing winds and sirocco, and especially stormy weather and electricity. But these impressions are transitory, and do not constitute a permanent condition, when they are not maintained by mental causes.

As to the remedies, apart from those I have pointed out, without being able to administer them at will, for most women moving in society, brought up as they are with us, and victims to the evils we speak of, I see nothing but the devotional exercises in fashion, works of charity, or cards to distract them. Happy are those who, in consequence of a better education, find in themselves the resources and necessary firmness to turn to the advantage of the mind the currents which with too much impetuosity rush upon the heart !

TOILET AND FASHION.

As I do not treat this question from the standpoint of art, I have little to say ; all I wish to do is to indicate some hygienic considerations with reference to it.

Our manner of dressing might be sharply criticised, especially as regards the ladies, were taste in question ; medical science has nothing very serious to reproach it with.

Elsewhere, when speaking of children,¹ I pointed out what was essential in their dress, and especially protested against the abuse of flannel, with which they are covered from head to foot on the least pretext. This abuse also obtains among adults, but is less injurious to them than to children. Wool next to the skin certainly is a good thing and a useful precaution against cold, especially in climates subject to sudden variations of temperature, like those of the south. Delicate, sensitive persons, who easily catch cold and must take care of their throats, lungs, or bowels, must beware of the sudden chills which occur in hot countries at certain hours of the day. Everybody knows that after a hot day, at the moment when the sun is about to disappear below the horizon, the air in the south, at the change of season, suddenly becomes sharp and piercing, to become mild again in the evening and when the night is fully come. At Montpellier and in Corsica it is colder at five o'clock P.M. in the spring than at ten o'clock at night. It is therefore well not to be taken unawares, and wool is a good preventive when no additional garment, such as a great coat or shawl, is at hand.

But these precautions must be employed with discretion, nor

¹ *Conseils aux Mères sur la Manière d'élever les Enfants nouveau-nés*, p. 256. 4th edition. Paris, 1869.

must it be forgotten that, whatever you do, it is very difficult, not to say impossible, to avoid surprises, and that the best means to harden yourself is not to be always excessively clothed for fear of the least draught of air.

Ah, these draughts of air ! our mothers feared them much less than we do, and were none the worse for it. I had an old aunt who, when she received a visit, out of politeness used to say, 'Sir, please take that seat ; you will be in a draught.' What a change in manners and habits, and what effemination in constitutions ! How many people such a mark of politeness would now-a-days drive away ! But how many people also are there who, with their minute precautions, arrive at the most ridiculous manias, least sociable and at the same time least hygienic !

The usages of southern countries, and especially of the East, are the authority for recommending warm clothing, wool especially next to the skin ; and there is not a traveller among us going to Africa who does not think himself obliged, under pain of the greatest dangers, heavily to cover his head, like the Arabs wearing turbans. They forget that everywhere there are prejudices by the side of sound ideas, and that the Mahometans are no more exempt from this law than Christians ; they have their abuses as we have ours, and I am inclined to think that their turban is one of them. Do we not see in Africa, beside the Arabs with their long piece of stuff rolled round their heads, aborigines—and I am not alluding to the negroes—who go about with their heads bare in the full sunshine ? And whilst it is thought that in the East it is absolutely necessary to load your head with an enormous weight, do not the American planters, in the same latitude, under a no less burning sun, consider a straw hat, as light as possible, the best protection ? Let us, then, conclude that there may be exaggeration here and there among the worshippers of Mahomet as well as among other nations, and that in every country it is best to consult reason and common sense, without however excluding results well established by experience.

When in winter, in severe weather, we see ladies take off

the warm dress they have worn all day to put on a ball costume which leaves them half naked, throwing on their shoulders nothing but a light pelisse, not to crush the delicate trimming, we are tempted to look upon this merely as an effort of coquetry, and this disregard of precaution against cold as a very great imprudence. The ladies in vain tell us that they do not feel the cold, that they are even warm ; we do not believe it ; these assertions appear to us as mere bravado, and we sigh in silence at this neglect of a health which is so dear to us. Well, the ladies are nevertheless in the right when they speak and act thus ; their conduct is not so contrary to physiological laws as might appear. Under these circumstances a very simple phenomenon, easily accounted for by the physician, takes place : it is certain that the animation of the ladies during the preparations for an evening party of pleasure, the moral excitement reacting on their physique, give to their blood an activity and consequently a warmth to their whole body, which stands them instead of a cloak. Far from being cold, they are thus really warm, and there is in their assurance to that effect neither trickery nor coquetry.

Yes, but it is no longer so at the end of the party, at the departure from the ball. All this excitement is over—the fatigued body is no longer upheld by the moral irritation of the fibres—and besides the danger of an abrupt transition, in passing from the stifling heat of a saloon full of people and lights, to the cold without, there would be great risk in exposing, unless well wrapped up, to the sharp and piercing air a body whose nervous fluid is exhausted. Fortunately our customs at the present day are in accordance with hygienic laws ; under these circumstances ladies no longer, as formerly, leave the ball-room uncovered, and one scarcely ever now hears the lamentable stories told by our mothers of the sad end of young women carried off almost abruptly because of quitting the ball-room without precaution. Since the invention of cashmeres, which ladies were very pleased to display on leaving the saloon, fashion has invented a great number of wrappers—*sorties de bal*—as comfortable and warm as elegant ; and there is nothing more to reproach the ladies with in this respect.

I have only a word more to add on the inconvenience produced by tight garments and corsets. Here again I shall take the part of the ladies, whilst at the same time I find fault with the truly fatal exaggerations of some. No, corsets such as are worn now, and which have nothing of what was formerly called stiffening (*corps*)—well-made corsets, fitting so well, and at the same time so supple—are not only no hindrance to organic functions, and do in no wise jeopardise health, but are beneficial by the support they afford the body and viscera, which have a tendency to be dragged down by their weight, or are badly held in their cavities. All that has to be guarded against is not to run to an excess, which is as injurious to grace as it is to health.

I am very pleased to find myself agreeing with my learned and intelligent colleague Dr. Bouvier as regards my conclusions respecting corsets. I did not know his excellent report to the Academy of Medical Science on this part of female dress. This report contains a very interesting account of stays and corsets; I have just read it with extreme pleasure, and beg to refer those interested on the subject to it.¹

I would even advise men to imitate women a little in this respect, and, without inviting them to wear corsets, would induce them not to be too negligent in their garments; it is not bad for them also, especially at a certain age, to be supported and kept together.

¹ Bouvier, 'Recherches sur l'Usage des Corsets' (*Bulletin de l'Académie de Médecine*, t. xviii. p. 355, Paris, 1853).

APPENDICES.

1. LIST OF MINERAL WATERS.
2. LIST OF THERMAL AND MARITIME STATIONS.
3. APPENDIX OF MEMORANDA.

LIST OF MINERAL WATERS.

(FROM DORVAULT'S 'L'OFFICINE.' EIGHTH EDITION. PARIS, 1872.)

*Indicating the countries where they are found, their mineralising principles, thermometric degrees, and manner of using them.*¹

Springs	Situations	Temp. ²	Mineralising Principles (per Litre of Water.) ³	Manner of Use ⁴
Acqui . . .	Piedmont . . .	° 167	Hydrosulphate of chalk . . .	500 to 1000,0 and baths
Aix-la-Chapelle . . .	Rhenish Prussia . . .	9 86	Sulphohydriodic acid . . .	1000 to 2000,0 do.
Aix (in Provence) . . .	Bouches du Rhône . . .	113	Salts . . .	do.
Aix in Savoy . . .	Upper Savoy . . .	132 8	Sulphohydriodic acid . . .	500 to 1000,0 do.
Alet . . .	Aude . . .	68 to 82 4	Bicarbonate of calcium . . .	
Alfter, or Roisdorff . . .	Prussia . . .	Cold	Gaseous acidulous . . .	
Allevard . . .	Isère . . .	Cold	Sulphur . . .	
Amélie les-Bains . . .	Eastern Pyrénées . . .	113	Sulphurous, sulphur of sodium, '01; total of salts	500 to 1000,0 and baths
Audincac . . .	Ariège . . .	71 6	Bitumen, '03, sulphohydriodic and carbonic acid	Drink
Auteuil . . .	Seine . . .	Cold	Bitumen, '03; iron	
Avène . . .	Hérault . . .	82 4	carbonate of soda . . .	1000 to 2000,0 and baths
Ax . . .	Ariège . . .	167 0	sulphur of sodium . . .	
Baden, or Bade . . .	Duchy of Baden . . .	149 0	salts . . .	Baths
Baden, or Bade . . .	Switzerland . . .	125 6	salts . . .	500 to 1000,0 and baths
Baden . . .	Austria . . .	9 50	sulphohydriodic acid . . .	1000 to 2000 do.
Bagnères de Bigorre, or Bagnères—Adrar	Upper Pyrénées . . .	64 4 to 123 8	Salts . . .	

	Orne .	So 6	Saline sulphurous .	do.	do.
Bagnols .	Lozère.	113 0	Sulphur .	do.	do.
Bains .	Vosges .	91 4 to 123 8	Salts .	—	—
Barlaruc .	Hérault .	102 2	Salts, 10; bromide of potassium, lithium	To purgation; baths	
Barbotan .	Gers .	87 8 to 100 4	Iron, bicarbonate .	500 to 1000, 0; baths	
Barèges .	Upper Pyrénées .	107 6	Sulphur of sodium .	Drink and baths	
Bath .	England .	113 0	Saline .	500 to 1000; baths	
Birmensdorf .	Argovia (Switzerland)	Cold	Sulphate of magnesia, 22·01; sulphate of soda	Drink	
Bléville .	Lower Seine .	Cold	Iron, sulphate of iron .	500 to 1000, 0 and baths	
Bonnes .	Lower Pyrénées .	91 4	Sulphur of sodium .	1000 to 2000, 0 and baths	
Boulon, Le .	Eastern Pyrénées .		Alkaline; carbonate of soda, 2·5; earthy c., 1; carbonate of iron	do.	
Bourbon-Lancy .	Saône-et-Loire .	109 4 to 147 2	Salts .	1·7	
Bourbon-l'Archaubault .	Allier .	140 0	Carbonate of soda, 5; carbonic acid	3 litres	
Bourbon-les-Bains .	Upper Maine .	136 4	Salts, 7·5; bromide of sodium .	5	
Bourboule, La .	Puy de Dôme .	125 6	Bicarbonate of soda .	1000, 0	
Bussang .	Vosges .	Cold	Carbonate of iron, ·02; carbonic acid	500 to 1000, 0	
Cadéac .	Upper Pyrénées .	Cold	Sulphur of sodium, ·06; iodine and bromide of potassium, ·01; sulphurous, <i>glairine</i>	1000, 0	
Camarès .	Aveyron .	Cold	Carbonate of soda, 1·9; carbonic acid	1 litre	
Cambo .	Lower Pyrénées .	73 4	Sulphohydriodic acid .	·004	
Carlsbad .	Bohemia .	123 8 to 163 4	Carbonate of soda, 1·2; sulphate of soda	Drinks and baths	
Cartera-Verduran .	Gers .	77 0	Sulphohydriodic .	1000 to 2000, 0 and baths	

¹ The seasons during which the waters are taken vary in length; one, two, three, and even five months, according to locality; they generally begin on May 1, or June, and end on September 15, and some on the 1st or even the 15th of October, seldom later.

² In degrees Fahrenheit.

³ Per litre of water. One litre is equal to 1·760773 English pints.

⁴ When we indicate a quantity, followed by the word *bath*, the water is used internally or externally. When there is but one indication, the water is only used internally or externally.

Springs	Situations	Temp.	Mineralising Principles (per Litre of Water)		Manner of Use
Castrocaro.	Italy . . .	° Cold	Saline, bromo-iodine . . .	—	Baths
Cauterets . .	Upper Pyrénées . .	118 4	Sulphur of sodium . . .	·02	500 to 1000, 0 and baths
Challes . . .	Piedmont . . .	Cold	Sulphur, bromo-iodine, total of salts.	·31	250 to 1000, 0 and baths
Châteauneuf . .	Puy de Dôme . . .	53 6 to 98 6	Carbonated . . .	3·7	Baths do.
Châteldon . .	Puy de Dôme . . .	Cold	Bicarbonate of magnesia, ·45; carbonic acid	1 to 2 litres	1000, 0
Châtel-Guyon . .	Puy de Dôme . . .	95 0	Sulphate of magnesia and chlorides . .	1	do.
Châtenois . . .	Lower Rhine . . .	Cold	Saline, iodine-bromine; iron, total of salts	4·15	Baths
Chaudès-Aignes . .	Cantal . . .	176 0	Saline . . .	1	1000 to 2000, 0 and baths
Cheltenham . .	England . . .	Cold	Saline, iodine and bromine, total of salts	10 to 11·02	500
Cheltenham . .	England . . .	Cold	Iron, total of salts . . .	8 to 10·10	1000 to 3000, 0
Condillac . . .	Drôme . . .	Cold	Acidulous, gaseous, carbonic acid . .	$\frac{1}{2}$ litre	Drink
Contrexeville . .	Vosges . . .	Cold	Carbonate of iron, ·27; selenious, organic matters	·03	1000 to 3000, 0
Cransac . . .	Aveyron . . .	Cold	Sulphate of iron, ·50; sulphate of magnesia	4	
Dax . . .	Landes . . .	86 0 to 150 8	Saline, total of salts . . .	·47	1000 to 2000, 0
Digne . . .	Lower Alps . . .	107 6	Sulphohydriodic . . .	—	Baths
Eaux-Chaudes . .	Lower Pyrénées . .	95 0	Sulphur of sodium . . .	·01	Drink and baths
Eger, or Egra . .	Bohemia . . .	Cold	Saline gaseous, total of salts . . .	4·57	1000, 0
Ems . . .	Nassau . . .	113 0	Bicarbonate of soda . . .	3·50	do.
Encausse . . .	Upper Garonne . .	75 2	Saline gaseous, total of salts . . .	2·77	500 to 1000
Enghien . . .	Seine and Oise . .	Cold	Sulphohydriodic acid, ·02; hydro-sulphate of calcium	·1	500 to 1000, 0 and baths
Epsom . . .	England . . .	Cold	Saline, trace of iodine and bromine, sulphate of magnesia	30	1000, 0

Escaldas . . .	Eastern Pyrénées .	107 6	Sulphur of sodium .	.05	Drink and baths
Évaux . . .	Creuse . . .	86 0 to 163 4	Salts (bromine, iodine, lithium) .	3.0	do.
Evian . . .	Upper Savoy . .	Cold	Alkaline, glairine, bituminous matter, total of salts	.43	do.
Faschingen . .	Nassau . . .	—	Bicarbonated . . .	—	Drink
Forges . . .	Lower Seine . .	Cold	Bicarbonate and crenate of iron, .69 ; total of salts	.29	250 to 2000,0
Friedrichshall .	Saxe Meiningen .	Cold	Saline (iodine, bromine, lithium), sulphate of soda, 7.30 ; sulphate of magnesia ; total of salts	25 gr.	Drink
Ganarde . . .	Landes . . .	Cold	Sulphohydriodic acid . . .	0 lit. 20	1000 to 3000,0 and baths
Gazost . . .	Upper Pyrénées .	Cold	Sulphur of sodium, .03 ; glairine, total of salts	.58	Drink
Grandrif . . .	Puy de Dôme . .	Cold	Bicarbonated, calcareous . . .	—	do.
Graville-l'Heure .	Lower Seine . .	Cold	Saline, chloro-iodine, total of salts .	1.07	1000 to 2000,0
Gréoulx . . .	Lower Alps . .	100 4	Hydrosulphate of chalk . . .	.04	Baths
Hamman-Meskout .	Algiers . . .	122 0 to 203 0	Sulphurous and ferruginous . . .	—	do.
Hamman-Riza . .	Algiers . . .	113 0	Saline, total of salts . . .	2.69	do.
Harrogate . . .	England . . .	Cold	Sulphur of sodium . . .	—	do.
Heilbronn . . .	Bavaria . . .	Cold	Chloro-bromo-iodine . . .	5.03	150 to 300,0
Homburg . . .	Hesse . . .	Cold	Saline . . .	15.54	300 to 500 and baths
Kissingen . . .	Bavaria . . .	Cold	Saline, iodine, lithium, total of salts	8.36	300 to 500 do.
Rakoczy . . .	Hesse-Darmstadt .	51 8 to 84 2	Saline, chloro-bromine-iodine . .	—	Baths
Kreuznach . . .	Upper Pyrénées .	Cold	Sulphur of sodium . . .	.47	1000 to 2000,0
Labassère . . .	Hérault . . .	95 0	Carbonate of soda . . .	7.44	1000 and baths
Lamalou . . .	Isère . . .	136 4 to 140 0	Saline, total of salts . . .	—	Baths
Lamotte-les-Bains .	England . . .	—	Saline, trace of iodine and bromine .	2.08	Baths
Leamington . . .	Valais (Switzerland)	91 4 to 123 8	Saline, ferruginous, sulphate of chalk, 1.53 ; total of salts		
Louesche, or Loèche . . .					

Springs	Situations	Temp.	Mineralising Principles (per Litre of Water)	Manner of Use
Luchon, or Bagnères de L.	Upper Garonne	62° 6' to 132° 8'	Sulphur of sodium	500 to 1000, 0 and baths
Lucca	Italy	104° 0' to 129° 2'	Saline, total of salts	Baths
Luxeuil	Upper Saône	62° 6' to 114° 8'	Salts and bitumen	1000 to 3000 and baths
Mariefels.	Nassau	Cold	Phosphoric acid, potassium, manganese	—
Marienbad	Bohemia	Cold	Carbonate of iron, carbonic acid, lithium	300 to 500 do.
Marlioz	Savoy	Cold	Sulphurous, bromo-iodine	Drink
Miers	Lot	Cold	Sulphate of soda	Drink and baths
Moligt	Eastern Pyrénées.	98° 6'	Sulphur of sodium, '03; <i>glairine</i>	Baths
Montbrun	Drôme	Cold	Sulphurous, total of salts	250 to 1000, 0 do.
Mont-Dore	Puy de Dôme	113° 0'	Carbonate of soda, '45; arsenic of soda	150 to 300, 0
Monte Calvario	Spain	Cold	Sulphate of soda and sulphate of magnesia	300 to 500 and baths
Nauheim	Hesse Electorate	69° 8' to 102° 2'	Saline, total of salts	250 to 1000, 0 do.
Néris	Allier	123° 8'	Bicarbonate of soda, '37; total of salts	500 to 1000 do.
Neyrac	Ardeche	Cold	Alkalies, ferruginous, saline; different metals	1000 to 2000, 0
Niederbronn	Lower Rhine	Cold	Salts (iodine-bromine, ferruginous)	Drink
Orezza	Corsica	Cold	Ferruginous	1000 to 2000, 0 and baths
Passy	Seine	Cold	Sulphate of iron	Drink
Penticosa	Spain	78° 8' to 82° 4'	Alkaline	Drink and baths
Pfeffers	St.-Gall (Switzerland)	98° 6'	Alkaline	do.
Pierrefonds	Oise	Cold	Sulphurous, total of salts	Baths
Pietrapola	Corsica	107° 6' to 131° 0'	Sulphohydriodic acid	—
Plombières	Vosges	59° 0' to 145° 4'	Bicarbonated, sulphated, and sodium silicated, '287; and organic matter	'06

Pougues	Nièvre	Cold	Saline, gaseous, 4·43; carbonic acid	1 litre	1000 to 3000, 0
Provins	Seine-et-Marne	Cold	Carbonate of iron	·11	250 to 500
Pullna	Bohemia	Cold	Sulphate of magnesia, 33·5; sulphate of soda	21·89	To purgation
Pymont	Westphalia	Cold	Bicarbonate of iron, ·1; strontium, manganese, carbonic acid	1 litre	250 to 1000, 0
Renaison	Loire	Cold	Acidulous gaseous	—	1000 to 2000
Rennes-les-Bains	Aude	Cold	Bicarbonate of iron	·11	100 to 300, 0
Rippoldeau	Duchy of Baden	Cold	Ferruginous, gaseous, sulphate of soda, ·94; total of salts	2·67	Drink
Roche-Portay, La	Vienna	Cold	Sulphohydriodic acid	—	250 to 1000 and baths
Royat	Puy de Dôme	93 2 to 95 0	Saline, ferruginous, total of salts	4·152	Drink and baths
Sail-les-Châteaux	Loire	80 6 to 93 2	Sulphurous, ferruginous, total of salts	·50 to ·85	h _s
Sail-sous-Couzan	Loire	Cold	Bicarbonated	—	Drink and baths
Saint-Alban	Loire	Cold	Bicarbonate of soda, ·85; total of salts	2·43	250 to 1000, 0
Saint-Amand	Nord	82 4	Salts	1·7	1000 to 2000, 0 and baths
St.-Denis-lès-Blois	Loir-et-Cher	Cold	Ferruginous, crenate of iron	—	Drink and baths
Saint-Galmier	Loire	Cold	Alkaline, gaseous, carbonic acid, 1 litre 25; total of salts	2·50	1000 to 2000, 0
Saint-Gervais	Upper Savoy	105 8	Salts	4·	Drink and baths
Saint-Honoré	Nièvre	91 4	Sulphohydriodic acid and organic matter	1·	do.
Saint-Nectaire	Puy de Dôme	100 4	Bicarbonate of soda	3	1000 to 2000, 0 and baths
Saint-Pardoux	Allier	Cold	Saline, gaseous, total of salts	1·67	250 to 1000
Saint-Sauveur	Upper Pyrénées	95 0	Sulphur of sodium	·02	500 to 1000, 0 and baths
Sedlitz	Bohemia	Cold	Sulphate of magnesia, 31·8; total of salts	33·5	To purgation
Salins	Jura	Cold	Saline, iodine bromine-chlorine, bromine of potassium, ·07; total of salts	302 gr. 92	Baths

Springs	Situations	Temp.	Mineralising Principles (per Litre of Water)	Manner of Use
Salzbrunn . Saxon .	Prussia . Valais (Switzerland)	° Cold 75 2	Alkaline, gaseous . . . Saline, iodine-bromine, calcareous and magnesian	Drink Baths
Schlängenbad . Schwalbach . Schwalheim .	Nassau . Nassau . Hesse Electorate .	82 4 to 89 6 Cold Cold	Bicarbonate of soda, total of salts . Ferruginous, total of salts . Acidulated, gaseous, salts, 2·50; car- bonic acid	do. 150 to 300 1000 to 2000
Sea-Water	. . .	Cold	Chlorine of sodium, 27 to 30; bro- mine, iodine	250 to 1000 baths
Seidschütz	Bohemia .	Cold	Sulphate of magnesia, 20·2; total of salts	To purgation
Selles . Seltzer . Schinznach .	Ardèche . Nassau . Argovia (Switzer- land)	77 0 Cold 87 8	Carbonate of iron . . . Salts, 4; carbonic acid, 1·03 . . . Sulphohydriodic acid . . .	Drink and baths 1000 to 2000 Baths
Soultz-les-Bains . Soultzbach .	Lower Rhine . Upper Rhine .	Cold Cold	Saline, iodine-bromine, salts . . . Ferruginous, alkaline, salts, 1·47, carbonic acid	1000 to 2000 Drink and baths
Soultzmatt . Spa . Sylanès . Toeplitz . Tongres . Torretta . Uriège . Ussat . Vals ¹ .	Upper Rhine . Belgium . Aveyron . Bohemia . Belgium . Italy . Isère . Ariège . Ardèche .	Cold Cold 100 4 149 0 Cold Cold Cold 82 4 to 100 4 Cold	Bicarbonate of soda . . . Carbonate of iron, ·07; carbonic acid Carbonate of iron . . . Carbonate of soda, ·34; total of salts . Alkaline, ferruginous, salts . . . Chlorine of sodium, sulphate of soda Hydrosulphate of chalk, ·01; salts . Saline, sulphate of magnesia . . . Bicarbonate of 2 to 9; iron, car- bonic acid	do. 1000 to 3000 and baths Baths 1000 to 2000, 0 and baths 1000 to 2000 Drink and baths 500 to 1000, 0 Baths 1000 to 2000, 0 and baths

Vernet	Eastern Pyrénées.	50 0 to 134 6	Sulphur of sodium .	. . .	.06	500 to 1000, 0 and baths
Vic-le-Comte	Puy de Dôme	Cold	Saline, gaseous .	. . .	—	Drink and baths
Vic-sur-Cère	Cantal	Cold	Acidulated gaseous, carbonic acid, 2 litres, total of salts	. . .	.50	Drink
Vichy ²	Allier.	91 4 to 113 0	Bicarbonate, 4 to 5; carbonic acid .	. . .	.997	500 to 1000, 0 and baths
Vinça	Eastern Pyrénées.	73 4	Sulphur of sodium .	. . .	.025	do.
Visos, or Vizoz	Upper Pyrénées .	Cold	Sulphurous, bituminous .	. . .	—	Drink
Viterbe	Papal States	113 0 to 136 4	Sulphurous and ferruginous .	. . .	—	Baths
Vittel	Vosges .	Cold	Saline, salts .	. . .	1.74	Drink
Watwyl	Upper Rhine	Cold	Saline, ferruginous, salts .	. . .	.59	do.
Weilbach	Nassau	Cold	Sulphurous .	. . .	1.50	150 to 3000, 0 baths
Weissenburg	Berne (Switzer- land)	80 6 to 84 2	Sulphate of calcium, 1.05; lithium, salts	. . .	1.61	Baths
Wiesbaden	Nassau	154 4	Salts .	. . .	5.68 to 8	250 to 1000, 0
Wildungen	Principality of Waldeck	Cold	Bicarbonate of soda .	. . .	2.58	250 to 1000
Yverdon	Neuchâtel (Swit- zerland)	77 0	Sulphurous .	. . .	—	Drink and baths

¹ At Vals there is a large number of springs, the best known of which are Saint-Jean, Précieuse, Rigolette, Desirée, Magdelaine, besides the spring Do-minique, whose arsenical composition and application are totally different.

² At Vichy there are three chief springs—the *Grande Grille*, *L'Hôpital*, and *Célestins* (cold). The first is the richest in carbonic acid. The spring *Lardé*, or *L'Enclos des Célestins*, that of *Vaise*, the springs of *Cusset*, *Hauterive*, and *Saint-Yorre* are comprised in those of Vichy.

AN ALPHABETICAL LIST
OF
THERMAL AND MARITIME STATIONS,

FRENCH, GERMAN, SWISS, ITALIAN, ETC.,
WITH THE CHIEF PHYSICIANS SUPERINTENDING THEM.

- Abano*—Foscarini, inspector.
Acqui—Granetti, insp.
Aix—Bourguet, insp. ; Siberti, assistant.
Aix (in Savoy)—Vidal, insp. ; Bertier and Davat, assist. ; Despine, hon. insp.
Aix-la-Chapelle—Hahn, Strater, consult. physicians.
Alet—Fournier, insp.
Allevard—Niepce, insp. ; Chataing, assist. ; Laure, cons. phys.
Amélie-les-Bains—Genceys, insp. ; Bouyer, suppl.
Arcachon—Hameau, insp.
Arromanches—Féron, consult. phys.
Audinac—Dehoey, insp.
Aulus—Bordes-Pagès, insp.
Avène—Lapeyro, insp.
Ax—Aufhan, insp.
Baden-Baden—Gans, cons. phys.
Baden (Austria)—Rollet and Lucas, cons. phys.
Baden (Switzerland)—Stephani and Minnig, cons. phys.
Bagnères de Bigorre—Subervie, insp. ; Barrier and Dulac, assist. ; Leopold Fontan, Valdes, and Martinez, cons. phys.
Bagnoles—Bignon, insp.
Bagnols—Raynal.
Bains—Bailly, insp.
Balaruc—Crouzet, insp.
Barbotan—Peyrocave, insp.
Barèges—Lebret, insp. ; Vergès, cons. phys.
Biarritz—Jaulerry, insp.
Bilin—Preiss, cons. phys.
Bocklet—Rubach, cons. phys.
Boulogne-sur-Mer—Cazin, cons. phys.
Bourbon-Lancy—Merle, insp. ; Rérole, assist.

- Bourbon-l'Archambault*—Perier, insp.; Charnaux, cons. phys.
Bourbonne—Renard, insp.; Magnin, assist.
Bourboule (la)—Peyronnet, insp.; Château, cons. phys.
Bruckenaue—Riegen, cons. phys.
Cabourg-Dives—Chardon, cons. phys.
Calais—Chély, insp.
Cambo—Hiriart, insp.
Cannes—De Valcourt, cons. phys.
Canstatt—Veiel, cons. phys.
Capvern—Ticier, insp.
Carlsbad—Fleckles, Hochberger, Gans, and Oestreicher, cons. phys.
Casciana—Chiari, insp.
Castéra-Verduzan—Mallet, insp.
Castrocaro—Muratoire, insp.
Cauterets—Cardinal, insp.; Flurin, Tessereau, cons. phys.
Celles—Barrier, insp.
Cette—Viel, insp.
Challes—Audony, insp.
Charbonnières—Finaz, insp.
Châteauneuf—Pénissat, insp.
Châtelguyon—Chaloin, insp.
Chatenois—Mitsler, insp.
Chaudes-Aigues—Bremont, insp.
Condillac—Pize, insp.
Contrexeville—Debout, insp.; Beau, cons. phys.
Cransac—Malet, insp.
Croisic (le)—Macario, insp.
Dax—Serres, insp.
Deauville—
Dieppe—Hédouin, cons. phys.
Digne—Silve, insp.
Dunkerque—Dutoit, insp.
Eaux-Bonnes—Pidoux, insp.; Manes and Schnepf, assist.; Briau and Leudet, cons. phys.
Eaux-Chaudes—Lemonnier, insp.; Lafaille, assist.
Ems—Busch, Danjoy, Vogler.
Enghien—De Puisaye, insp.; Gillebert d'Hercourt, Martin, cons. phys.
Escaldes—Guillo, insp.
Eugénie-les-Bains—Arrat-Balons, insp.
Euzet—Treuille, insp.
Etretat—De Miramont, cons. phys.
Evian—Humbert, insp.; Million, assist.; Le Breton, cons. phys.
Fécamp—Lanctait, cons. phys.
Forges—Caulet, insp.
Forges-les-Bains—Kolousky, insp.

- Franzensbad*—Cartellieri, Furst, cons. phys.
Gastein—Proell, cons. phys.
Gleichenberg—Prasil, cons. phys.
Gleiseiler—Schneider, cons. phys.
Gréoulx—Jaubert, insp.
Guagno—Fomonti, insp.
Guillon—Lambert, insp.
Hauterive-lès-Vichy—Durand-Fardel, insp.
Heilbrunn—Fischer, cons. phys.
Homburg—Gardey and Müller, cons. phys.
Houlgate-Beuzeval—Raoul Le Roy, cons. phys.
Ischia—Rossataglia and Iole, cons. phys.
Ischl—Mastalier, cons. phys.
Kissingen—Gatschenberger, cons. phys.
Krankenheil—
Kreuznach—Wiesbaden, Engelmann, and Trautwein, cons. phys.
Kronthal—Kuster, cons. phys.
Lavey—Cossy, cons. phys.
Loèche—Brunner, cons. phys.
Lucques—Carina, insp.
Luxeuil—Delacroix, insp. ; Delaporte and Martin-Lauzer, cons. phys.
Malou (la)—Privat and Boissier, insp.
Malou du Centre (la)—Sordet, cons. phys.
Marienbad—Frankl, Lucka, and Schindler, cons. phys.
Martigny-les-Bains—Buez, insp.
Molitg—Picou, insp.
Montbrun—Bernard, insp.
Mont-Dore—Vernière, insp. ; Richelot, assist. ; Brochin, Boudant, Mascarel,
 Chabory-Bertrand, Vachez, cons. phys.
Monte Catini—Fedeli, insp.
Montmirail—Millet, insp.
Nauheim—Beneck, cons. phys.
Néris—Bonnet de Malherbe, insp. ; Faure, assist.
Neyrac—Munaret, insp.
Niederbronn—Grimaud, insp.
Olette—Puig, insp.
Orezza—Perelli, insp.
Ostend—Achermann, insp.
Penticouse—Herrera and Ruiz, insp.
Pfeffers—Dorman, cons. phys.
Pierrefonds—Sales-Girons, insp.
Pisa—Torri, insp.
Plombières—Verjon, insp. ; Liétard, assist. ; Turck, Leclerc, and Bottentuit,
 cons. phys.
Pougues—Logerais, insp.

- Préchappe*—Bathédât, insp.
Preste (la)—Berny, cons. phys.
Provins—Dorez, insp.
Puzzichello—Marsili, insp.
Pyrmont—Giesecken and Lynken, cons. phys.
Récoaro—Cheminelli, insp.
Rémé—Braun, cons. phys.
Rennes—Gazaintre, insp.; Vié, assist.
Rippoldsau—Feierlein, cons. phys.
Roche-Posay—Guignard, insp.; Pallu, assist.
Rouzat—
Royan—Salmon, insp.
Royat—Basset, insp.; Imbert.
Sables d'Olonne—Petiteau and Garnier, cons. phys.
Saint-Alban—Gay, insp.
Saint-Amand—Marbotin, insp.
Saint-Boès—
Saint-Christan—Tillot, insp.
Saint-Denis—Arnoult, insp.
Saint-Galmier—Ladevèze, insp.
Saint-Gervais—Billout, insp.
Saint-Honoré—Colin, insp.
Saint-Malo—Behier and Botterel, cons. phys.
Saint-Moritz—Brugger, cons. phys.
Saint-Nectaire—Dumas-Aubergier, insp.
Saint-Valery-en-Caux—Morel and Renard, cons. phys.
Saint-Valery-en-Somme—Gellé and Ravin, cons. phys.
Saint-Sauveur—Charmasson, insp.
Salies de Béarn—Nogaret, insp.; Larroque de Constaté, cons. phys.
Salins—Dumoulin, insp.
Salzbrunn—Rosemann and Meyer, cons. phys.
Saxon—Aviolat, insp.
Schinznach—Zurkowski, insp.; Amsler and Hemman, cons. phys.
Schlangenbad—Bertrand and Baumann, cons. phys.
Schwalbach—Genth, cons. phys.
Schwalheim—
Seine (Department of)—De Laurès, insp.
Sermaise—Prin, insp., Damourette, assist.
Soden—Thilenius and Koehler, cons. phys.
Soultzmatt—Grimaud, insp.
Spa—Jules Lezaack and Rouma, cons. phys.
Sylvanès—Calvet, insp.
Töplitz—Richter, cons. phys.
Tréport—Lemarchand, cons. phys.
Trouville—Roccas, cons. phys.

Uriage—Doyon, insp., cons. phys.

Ussat—Bertillon.

Vals—Chabanne, insp., Lesourd, Tourette, cons. phys.

Vernet—Pigłowski, insp.

Vic-sur-Cerc—Cavaroc, insp.

Vichy—Dubois, insp.; Willemín, assist.; Daumas, Delavigerie, Léonce,
Soulignoux, cons. phys.

Vinça—Pascult, insp.

Vittel—Patezon, insp.

Weilbach—Stift, cons. phys.

Weissebourg—Müller, cons. phys.

Wiesbaden—Mahr and Herxheimer, cons. phys.

Wildbad—Burckhard and Schonleber, cons. phys.

APPENDIX OF MEMORANDA.

FROM THE 'AGENDA MÉDICAL' FOR 1872. PARIS: ASSELIN.



THERMAL THERAPEUTICS.

BY CONSTANTIN JAMES.

A DISEASE being given, which is the best spring for its treatment? The whole problem of mineral waters is involved in this. In order to solve it we shall successively pass in review under different headings, in separate sections, the diseases that attack the nervous system, the organs of the chest and abdomen, surgical diseases, and finally general complaints, placing opposite to each the name of the spring most suitable for combating or curing it.

I. DISEASES OF THE NERVOUS SYSTEM.

Paralysis.—No mineral water is indicated when paralysis is recent and arises from an organic lesion. If, on the other hand, paralysis arises from simple nervous weakening, or the hæmorrhoidal centre, of which it is the exponent, has for some time been ulcerated, most thermal springs, judiciously used, may be of service, especially those of Bourbonne, Balaruc, Bourbon-l'Archambault, La Motte, Barèges, Luchon, Aix-la-Chapelle, Wiesbaden, Aix in Savoy; the mud-springs of Saint-Amand, Acqui, Abano, and Egra; baths of carbonic acid gas and of the Grotto of Ammoniaque; the natural hot air, sand, and water baths of Ischia.

Paraplegia.—Four sources especially seem to possess undoubted efficacy in the treatment of certain paraplegies: those of La Malou, Casciana, Wildbad, and Gastein; nor let us forget Pfeffers.

Neuralgia and Nervous Diseases.—In these mineral waters act chiefly by temperature, which ought to be rather low. They are: Nérès, Plombières, Bains, Luxeuil, Eaux-Chaudes, Saint-Sauveur, Bagnères de Bigorre, Pietrapola, Ussat, Ems, Schlungenbad, Baden-Baden, Töplitz, and sea-baths.

Nervous Deafness, Amaurosis.—Local douches of carbonic acid gas ; Grotto of Ammoniaque ; sulphur and other vapours. (Treatment doubtful.)

II. CHEST DISEASES.

Phthisis of the Lungs and Larynx, Catarrhal Affections.—When the patient is not very irritable and of lymphatic complexion: Eaux-Bonnes, Cauterets, Labasserre, Le Vernet, Amélie-les-Bains, Saint-Boès, Mont-Dore, Royat, Saint-Honoré, Enghien, Pierrefonds, Lacaille, Alleverd, Celles. When he is irritable or there is plethora : Ems, Soden, Weilbach, Penticouse ; cures of whey and grapes.

Nervous Asthma and Emphysema.—The same springs as above.

Diseases of the Heart or large Vessels.—All mineral waters, except perhaps those of Weilbach, would be injurious, in consequence of the activity they would impart to the circulation.

III. DISEASES OF THE ABDOMEN.

Gastralgia, Anorexy, Flatulence.—Plombières, Vichy, Vals, La Bourboule, Royat, Le Boulon, Ems, Evian, Pfeffers, Krankenheil, Kissingen, certain ferruginous springs ; cold acidulated waters, such as Seltz, Fachingen, Rippoldsau, Châteldon, Saint-Galmier, Pougnes, Sulzbach, and Bussang.

Diarrhœa through Atony.—The ferruginous waters, especially those of Bagnères de Bigorre, Audinac, and Sylvanès, on account of their high temperature ; Plombières ; gaseous waters.

Constipation, Hypochondria.—All strong muriatic waters : Kissingen, Homburg, Soden, Niederbronn ; the springs of Saint-Gervais, Carlsbad, Châtel-Guyon, and Marienbad ; cures by whey.

Suppression of Hæmorrhoids.—The same waters as above, especially Marienbad.

Enlargement of Liver and other Abdominal Viscera.—Vichy, Vals, Le Boulon, Pougnes, Saint-Hectaire, Cransac, Encausse, Sermaize, Plombières, Orezza, Baden (Switzerland), Ems, Carlsbad, Marienbad, Kissingen, La Poretta, Montecatini, Ischia, and most muriatic springs.

Biliary Stone.—Same springs.

Vesical Catarrh.—Vals, Vichy, Pougnes, Contrexeville, Martigny, Vittel, Saint-Sauveur, La Preste, Ems, Evian, Pfeffers.

Gravel.—The same springs as above. To select the spring, examine the chemical composition of the gravel, and compare with that of the mineral spring.

Urinary Stones.—No spring possesses the property of dissolving these stones, except, in a few rare cases, that of Carlsbad.

Amenorrhœa and Dysmenorrhœa.—These are only symptoms of a general condition. If there be atony of the uterus, ferruginous, sulphurous, muriatic, and acidulated waters, especially those that are thermal, as drinks, baths, and douches ; sea-baths. If, on the contrary, there be

plethoric enlargement : Nérís, Bourbon-Lancy, Plombières, Ussat, Saint-Sauveur, Ems, Schlangenbad, Baden-Baden, Töplitz, Pfeffers.

Uterine Complaints.—The same springs and same therapeutie indications.

Sterility.—Its treatment requires the use of different springs, according to the cause producing or maintaining it. No specification.

Impotence, Seminal Discharges, Incontinence of Urine.—Sulphurous waters, especially Barèges, Luchon, Cauterets, Aix-la-Chapelle, Aix in Savoy ; muriatic waters, such as Balaruc, Bourbonne, Wiesbaden, Ischia ; most ferruginous springs ; the alkaline waters of Wildbad and Gastein, or the thermal ferruginous springs of La Malou and Casciana ; sea-baths.

IV. SURGICAL COMPLAINTS.

Wounds from Fire-Arms, Bone Diseases, Caries, Fistula.—Barèges, Bourbonne, Bourbon-l'Archambault, Bagnoles, Balaruc, Saint-Amand, Guagno, Aix in Savoy, Aix-la-Chapelle, Wiesbaden, Töplitz, Gurgitello ; baths and douches ; sea-baths.

Sprains, False Ankylosis, Consequences of Contusions and Fractures.—The same springs as above, mud-baths, and in general all thermal waters strongly mineralised.

V. GENERAL DISEASES.

Skin Diseases, Ulcers.—If the complaint is of long standing and the patient not excitable : Loèche and the sulphur-springs of Bagnères de Luchon, Barèges, Cauterets, Olette, Uriage, Allevard, Enghien, Puzichello, Schinznach, Aix in Savoy, Lacaille, Saint-Gervais, La Poretta, Viterbe, Aix-la-Chapelle, Baden (Austria). But if there be irritation or great excitability, you will give the preference to Molitg, Saint-Sauveur, Escaldas, and the slightly saline springs of Nérís, Ussat, Bigorre, Ems, or Schlangenbad.

Syphilitic Diseases, Mercurial Cachexy.—In the first rank Loèche and sulphur-springs, specially Bagnères de Luchon, Barèges, Cauterets, Aix-la-Chapelle, Aix in Savoy, Schinznach ; the iodine springs of Challes, Krankenheil, and Heilbrunn.

Rheumatic Complaints.—All thermal springs may be of use, provided you choose the one most suitable for the greatly varying character of the disease and temperament.

Gout.—Vals and Vichy in some cases possess a marked efficacy in the curative treatment of gout ; other springs, those of Wiesbaden, Homburg, Kissingen, and Töplitz, act rather by regulating the fits and favouring their manifestation than by attacking the disease itself ; Carlsbad and Marienbad possess the property of dissolving tophaceous concretions.

Diabetes.—Vichy, Vals, Le Boulou, Evian, Ems, Carlsbad ; all alkaline springs.

Chlorosis, Poverty of Blood—The ferruginous waters of Forges, Ba-

gnères de Bigorre, La Bauche, Orezza, Spa, Schwalbach, Kronthal, Pyrmont, Franzensbad ; gaseous waters and sea-baths.

Scrofula.—Muriatic springs, especially those where the mother-water of salt-springs is used, such as Kreuznach, Krankenheil, Nauheim, Ischl, Lavey ; sulphurous waters, especially Barèges, Luchon, Pietrapola ; some sources rich in iodine, Challes, Wildeck, Heilbrunn ; sea-baths.

Intermittent Fevers of long standing.—Bourbonne, Cransac, Bourboule, Encausse, Orezza, Vals.

Such is a *résumé* of the indications formulated in great detail in the seventh edition of my 'Guide' (p. 406, *et seq.*) Incomplete as they are here, they will at least prevent the mistakes committed every day in the selection of waters—mistakes of which the consequences are often fatal.

MEMORANDA ON THE WINTER STATIONS OF FRANCE, ITALY, SPAIN, AND AFRICA.

BY DR. DE VALCOURT.

WINTER stations are localities enjoying climatological conditions exceptionally favourable to invalids. In the north a person suffering from consumption, as soon as winter begins, is condemned to keep his room, while in the south a more uniform and gentle temperature allows him almost every day air and exercise. Pulmonary consumption may be cured, thanks to the influence of climate, provided hygienic rules be strictly observed, and patients begin the treatment as soon as the disease declares itself. The selection of the winter station will depend more on the symptoms and constitution of the patient, than on the kind of complaint from which he is suffering.

The most noted winter stations are the following :—

I. FRANCE.

Pau (*Lower Pyrénées*) a handsome town, offering the most varied resources ; its temperature is only 2.5° above that of Paris ; in the average year there are twenty-five days when the thermometer sinks down to zero and below ; the number of rainy days is 140 ; nevertheless the air is not very damp, because the soil is sandy, and thus quickly absorbs the rain-water. The chief advantage of the locality consists in its calm atmosphere, which is very precious to patients of an irritable temperament, in whom nervous excitability is very pronounced.

Amélie-les-Bains (*Eastern Pyrénées*) is a village long known for its sulphurous thermal springs. Its winter temperature is very mild, but occa-

sionally liable to sudden variations ; in the spring the mistral sometimes blows for several days with considerable violence. This station, on account of its tonic climate and sulphur-springs, is useful in combating chronic rheumatism and herpetic affections of the skin and mucous membranes.

Hyères (Var), a small town well sheltered from the north wind, exposed to the full south, four kilometers from the sea, but insufficiently protected against the mistral ; the thermometer rarely sinks below zero. It is a station recommended for slow consumption, scrofula, excessive mucous secretions, such as bronchorrhœa.

Cannes (Alpes-Maritimes), a town on the borders of the Mediterranean, sheltered from the mistral by the mountains of Esterel, and from the north wind by the Alps and several chains of hills. Its temperature allows of the open-air cultivation of orange, lemon, and palm trees. Climate tonic, dry (seventy days' rain a year, as at Hyères and Nice). Residence near the shore is advisable for rheumatics, scrofula, chlorosis, senile weakness. Consumptive and nervous persons will prefer the hills of Cannes and Cannel ; they form an amphitheatre perfectly sheltered from land-winds, and are too far from the sea to come under the influence of the sea-breeze.

Nice (Alpes-Maritimes) may be recommended to people of fashion, accustomed to the distractions of large cities, and who wish to spend the winter in the south. A great many consumptive persons cannot stand its climate, which is particularly stimulating, on account of the almost constant agitation of the atmosphere ; the hills around the town are less exposed to the winds and offer some sites favourable to invalids.

Mentone (Alpes-Maritimes), built on a narrow strip of land between the Alps and the Mediterranean. Its temperature is generally very mild ; there are magnificent plantations of lemon-trees ; a charming residence for patients who need not fear the immediate neighbourhood of the sea.

Nearly every medical treatment may be followed without leaving French territory.

II. ITALY.

Venice.—This city, thanks to the lagoons of the Adriatic, has a calm, damp atmosphere, uniform temperature, though rather low in winter ; its climate is essentially sedative.

Pisa (Tuscany).—Strangers nearly always reside in the houses built on the quays of the Arno, facing the south. This climate corresponds to that of Pau ; its temperature is a little milder ; 120 days' rain a year.

Rome and Naples enjoy a rather high winter temperature, which, however, is liable to sudden variations ; north-east winds frequently prevail, and, having passed over the Apennines, are cold : these towns, therefore, are not suitable residences for patients suffering from complaints of the respiratory organs.

Sicily offers several localities, admirably situate as regards climate ; as, for instance, Palermo and Catania : but, from want of medical observations, we cannot compare them with other winter stations.

III. AFRICA.

Algiers.—Temperature rather higher during the day than that of European cities. The nights are very cool. Frequent and extensive oscillation of the barometer. This climate has been the subject of numerous observations tending to demonstrate its efficacy in cases of phthisis. Patients ought to return to France in the month of May, for the summer heats are excessive.

Cairo.—Its distance* from Europe, and the great expense the mode of life adopted there involves, render it accessible to rich people only. Climate very mild ; air dry during the day, damp at night ; dew abundant ; twelve days' rain only ; fogs sometimes in winter mornings. The wind from the desert is burning.

IV. SPAIN.

The climate of Valencia and Malaga has been studied these last few years ; it rains from thirty to forty days a year ; the contrariety of the winds disturbs the stability of the air in the spring ; during winter the atmosphere is more calm.

Funchal (Island of Madeira) receives a large number of English invalids ; French people, little accustomed to maritime travelling, seldom go there. The temperature is uniform and mild, the atmosphere often foggy ; hail seldom falls, and snow never. This climate suits consumptive persons, who are not afraid of damp.

The following table gives the temperature of these different medical stations, arranged according to that of winter (centigrade) :

	Winter	Spring	Summer	Autumn	Whele Year
Venice	3·3°	12·6°	22·8°	13·3°	12·5°
Pau	5·8	11·5	18·6	13·1	12·3
Pisa	6	14·2	24	15·6	14·9
Rome	7·5	13·8	24·9	18·3	15·8
Amélie-les-Bains .	7·9	14·9	23·2	15·9	15·2
Nice	8·3	13·7	22·9	16·1	15·2
Hyères	8·5	15	23·4	15·5	15·6
Cannes	9	15·8	24·2	18	16·7
Mentone	9·2	16·2	24·6	17·5	17·6
Naples	9·8	15·2	23·8	16·8	16·4
Palermo	11·4	15	23·5	19	17·2
Algiers	12·4	17·2	23·6	21·4	17·8
Malaga	13·1	20·3	26·8	16·2	19·1
Cairo	14·6	21·9	29	23·2	22
Funchal	16·3	17·5	21·1	19·8	18·7

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ZOOLOGY SINCE CUVIER.

Professor BERTHELOT.

CHEMICAL SYNTHESIS.

Professor J. ROSENTHAL (of the University of Berlin).

(Subject not yet received)

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